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BLUE JAY

A JOURNAL OF NATURAL HISTORY AND CONSERVATION
FOR SASKATCHEWAN AND ADJACENT REGIONS

ol. XXVII, No. 2 Regina, Saskatchewan June, 1969

rmine (see page 95)

Photo by Stuart L. Iverson
and Brian N. Turner

Published quarterly by the
SASKATCHEWAN NATURAL HISTORY SOCIETY
Regina, Saskatchewan

WHAT KIND OF NATIONAL PARKS DO WE WANT?

From time to time we have encouraging evidence of the community of interests shared by people interested in natural history and those specifically interested in game resources. This was shown, for example, in a meeting held in Calgary on March 28 to discuss national parks policy. At this meeting a number of organizations with different objectives were represented, including the Canadian Wildlife Federation. The C.W.F., as represented by its executive director, Mr. R. C. Passmore, was able to find a basis for common agreement with organizations like the Nature Conservancy. From the discussions, a policy for parks was spelled out, from which Mr. Passmore cites the following main points:

1. That national parks should, essentially, be national wilderness parks in which enjoyment of only those types of recreation completely appropriate to wilderness would be encouraged. Developments (such as campsites and other service facilities) designed to facilitate enjoyment of the wilderness should be on the periphery of the wilderness but within the boundaries of the national wilderness park.

2. Commercial facilities for providing holiday recreation at any season of the year should be provided adjacent to but outside the boundaries of every national wilderness park on lands controlled by either federal or provincial government but developed under a strict zoning program. Where such areas are now contained within the borders of national parks, park boundaries should be redrawn so as to exclude them from within the boundaries of national wilderness parks.

3. The federal and provincial governments should be urged to co-operate fully in establishing several new national wilderness parks while suitable areas are still available.

4. Adoption of a new parks Act which would establish the boundaries of wilderness areas in legislation and which would provide for such other types of national lands as national sea shores and national wild rivers.

5. Adoption of a national wildlife Act which would make provision for national nature preserves and national wildlife lands to be administered by the Canadian Wildlife Service.

6. Establishment of a Commission or Crown Corporation to acquire and manage national wilderness parks, national seashores, national wild rivers and national historic sites.

It seems to me that this is just the kind of thing that the Saskatchewan Natural History Society has been saying, and the kind of thought that lies behind our persistent effort to promote the establishment of the new grasslands park. There is, however, still a "selling job" to be done, for the opposition of certain groups of Saskatchewan people to such a park is real and recognized, and undoubtedly is partly responsible for the provincial government's reluctance to make lands available for it. So we welcome the opportunity to join with these other organizations which are supporting an enlightened national parks policy.

I think that we should not underestimate the effect that public opinion has on government policy. Even private individuals writing to members and cabinet ministers can have influence, if enough people do this. I have just received an answer to a letter I wrote to the Minister of Indian Affairs and Northern Development about our grassland park proposal and about the establishment of a national park in the East Arm area of Great Slave Lake, in which Mr. Chrétien makes this very point. "It is necessary," he says, "to have such a body of public opinion in order that general and long term benefits may be assessed in comparison with more specific interests and benefits."

THE BLUE JAY

Published quarterly by the Saskatchewan Natural History Society
Founded in 1942 by Isabel M. Priestly
Second class mail registration number 1046

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FRANK BAINES, 1877 - 1968

a tribute by **C. Stuart Houston,** Saskatoon

Saskatchewan lost one of its devoted conservationists and an important link with its pioneer origins when Mr. Frank Baines passed away at the age of 91 years on October 19, 1968.

He was born in Manchester, England on October 1, 1877. In 1883 the family settled at "Crescent City" (simply a cluster of tents), Assiniboia, N.W.T., some 18 miles south of the present city of Yorkton. Rabbits were their staple food that first winter. Both Frank and his brother Fred, three years his elder, became very interested in the wildlife of the area and they began collecting and preparing specimens to sell to commercial collectors in eastern Canada. Frank skinned the birds and applied the arsenical paste, while Fred handled the "business end" of the project. From about 1887 to 1890, specimens were sent to Mr. Rippon of Toronto,
then for five years to E. J. Cousins
Spadina Avenue, Toronto. Walt
Raine of Toronto then received mar
eggs and a few skins during the la
five years of the century. Raine visit
the Baines farm for nearly a week
1901 and took the beautiful phot
graphs of the Horned Grebe, Sandh
Crane, Marbled Godwit and Uplar
Plover nests that appeared in Chest
A. Reed's authoritative *North Amer*
can birds' eggs in 1904.

The Baines brothers collected alt
gether about 60 different species
birds. Data as to date and localit
were attached to each bird, or wit
each set of eggs, but no master recor
was kept and unfortunately the wher
abouts of the vast majority of t
birds they collected is unknown. O
Little Brown Crane which they co
lected at Crescent Lake on May 2
1899, is in the Harvard Museum

Comparative Zoology.

When the *Blue Jay* was first published by Mrs. Priestly in 1942, Frank Baines was one of the select group of 75 original subscribers. Many of his notes appeared in the first two volumes, including participation in the first annual Saskatchewan Christmas Bird Count. Later contributions to the *Blue Jay* expressed his concern about the decline of the Sharp-tailed Grouse and his article of reminiscences of the early days, entitled “Then and Now”, appeared in the Golden Jubilee Museum Issue of September 1955 (13:23-25). A more complete account of his experiences in the early days appeared in two instalments in the *Yorkton Enterprise* on March 18 and July 8, 1948.

He organized the Saltcoats and District Conservation Society on August 20, 1954, which affiliated with the Saskatchewan Natural History Society. That year the Saltcoats society organized 29 observers in 12 groups to cover 10 different rural school districts on the Christmas Bird Count; his sons Dave and Walter and sons-in-law Jim Rooke and Glen Laycock participated, together with several of his grandchildren. Ten nailkeg nest boxes were placed around Anderson Lake, Saltcoats in 1955 and at least two were used by Goldeneye ducks in 1956 and 1957. Although the Society “petered out” after two years, Frank Baines continued a vigorous outdoorsman until well beyond his 80th birthday, attended annual meetings of the provincial society and contributed to the program on at least two occasions.

His son, Elwin K. Baines, Tisdale apiarist, is a past Vice-President of the Saskatchewan Natural History Society and Phil, President of the Saskatoon S.P.C.A., is also a member. Dave, on the home farm, passes on significant bird observations each year.

How appropriate that our Saskatchewan Museum of Natural History in Regina was dedicated in Jubilee Year “to the honour of all the pioneers who came from many lands to settle in this part of Canada — a tribute to their vision, toil and courage which gave so much to Saskatchewan and this nation.”

BRIEF NOTES ON CERTAIN ANIMALS OF THE CRESCENT LAKE DISTRICT, SASKATCHEWAN, SINCE 1883

by the late **Frank Baines**

In 1950 Mr. Baines, the pioneer to whom the above tribute was written, commented on some of the animals in that region. Included in his remarks was information on the changes in abundance of certain species. Since records of historical distribution are rare and so of particular interest, his comments are reproduced here.

Star-nosed Mole *(Condylura cristata)*:

I believe we trapped a Star-nosed Mole about 1915 on SE¼ 29-23-3 W2, while catching “gophers”.

Snowshoe Rabbit *(Lepus americanus)*:

These hares were abundant in 1883 and formed the main item of our diet the first winter. Their numbers have since decreased, but they are still common.

White-tailed Jack Rabbit *(Lepus townsendii)*:

Jack rabbits were rather uncommon in the 1880’s, but have been common since about 1900.

Woodchuck *(Marmota monax)*:

No woodchucks were seen until about 1915, but now they are an uncommon but consistent resident.

Beaver *(Castor canadensis)*:

The first beaver noted in the district came to the Cutarm Creek in the 1920’s, and resided there until trapped illegally a few years ago. A new pair have since been planted there by the Department of Natural Resources.

Wandering individuals have also

been seen: about 1924 one was observed on NW 20-23-3 W2, going upstream; an island on NW 30-23-3 showed beaver teeth marks on the trees; one lived for three years on NE 4-23-3.

Norway Rat *(Rattus norvegicus):*

The first rat seen was caught by hounds about 1928, and have increased in numbers since.

Arctic Fox *(Alopex lagopus):*

About 1924 an Arctic Fox was caught by a neighbour's dog.

Red Fox *(Vulpes vulpes):*

Red foxes were quite common in the early days. I believe there were four or five pairs resident on our home section in 1883, and up to 10 pairs per section south of Boakeview School. About 1920 they disappeared for some years. Now an occasional one is seen.

Wolverine *(Gulo luscus):*

One was seen when hunting deer at Crescent Lake about 1920. I thought the track must be that of a lynx and followed it to where the wolverine was curled asleep on the sunny side of some balsam poplars. He dived for cover as I shot and missed him.

Badger *(Taxidea taxus):*

Badgers were plentiful in the 1880's, then almost disappeared after the turn of the century.

Lynx *(Lynx canadensis):*

An occasional stray came into the district. One that had been treed by Indian dogs was shot in the 1890's.

Wapti *(Cervus canadensis):*

Elk were said to have been present in the 1870's. In the 1880's antlers were found, but no animals were seen. Tracks were seen north of Saltcoats once, about 1920.

Mule Deer *(Odocoileus hemionus):*

Mule Deer were fairly common in 1883, although not as common as the White-tailed Deer are now. They always paused to look at the hunter before they would run and hence were easy to shoot. None are seen now.

White-tailed Deer *(Odocoileus virginianus):*

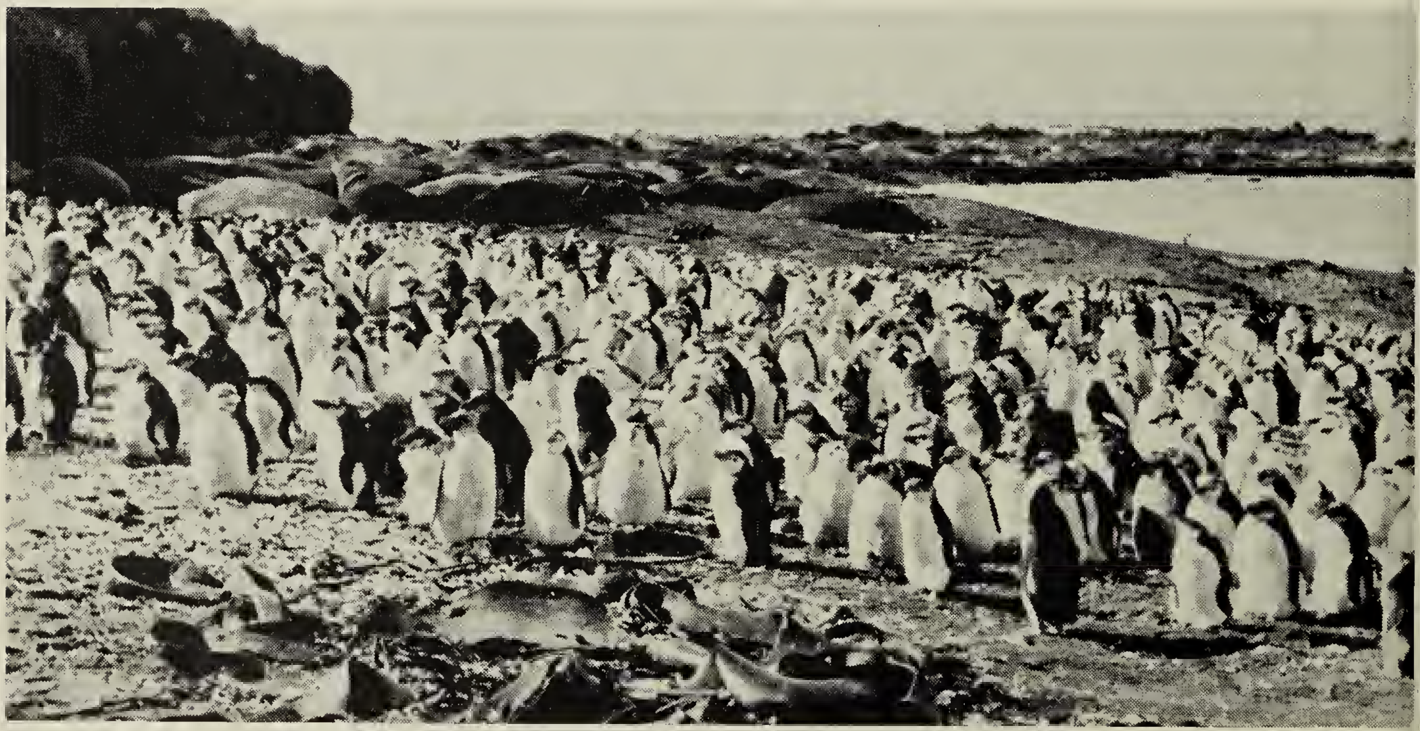
No White-tailed Deer were present until 1896. They became common about 1910, and increased in number as the country became settled.

Bison *(Bison bison):*

No bison were left by 1883, though great quantities of buffalo bones indicated that they had been numerous not too long before.

MACQUARIE ISLAND 54° SOUTH

by **Bill Merilees,** Castlegar, British Columbia



Royal Penguin "sit in". Elephant Seals in background.

Royal Penguins on Macquarie Island, male on right, female on left

EDITOR'S NOTE: Bill Merilees joined our group in 1958 and has been taking the Blue Jay ever since. He attended our June meeting in 1961 when he was working for CWS in Saskatoon. Our summer meeting that year included visits to historic sites at Batoche. Since then Bill has obtained his B.Sc. in Zoology and Botany from the University of British Columbia. He has visited Fiji, Tonga and Samoa, New Zealand, Australia, Singapore, Ceylon, India, East Africa, Sudan and Egypt and during 1967 the Macquarie Island. He is now teaching at Selkirk College in Castlegar.

When I left Canada in 1964 on an extended tour, I had little thought of the Antarctic until I visited Canberra, the Australian capital. Here, on a sunny afternoon, I was offered a biological appointment with the Australian National Antarctic Research Expedition. After much pondering and debate I accepted and, though there were certainly hardships, a more interesting decision I have yet to make.

Macquarie Island, although not in the Antarctic proper, straddles the Antarctic Convergence 54° south. Along this convergence the cold antarctic waters meet the warmer subtemperate waters; and it is the mixing of these which causes the upwelling of vast quantities of nutrient salts which sustain a great chain of organisms. Penguins, albatross and the great whales culminate this chain. Between 50° and 60° south the world is 98 percent water but to the biologist, at present, it is the remaining two percent that is of great interest, for it is to this small area of *terra firma* that all the oceanic birds and seals must congregate to breed. Macquarie Island owes its discovery to this fact. In 1810, Captain Hasselborough discovered the island in his quest of the Fur Seal and in the few years immediately following his discovery this species soon became locally exterminated. Today, the Fur Seal is making a slow but steady comeback.

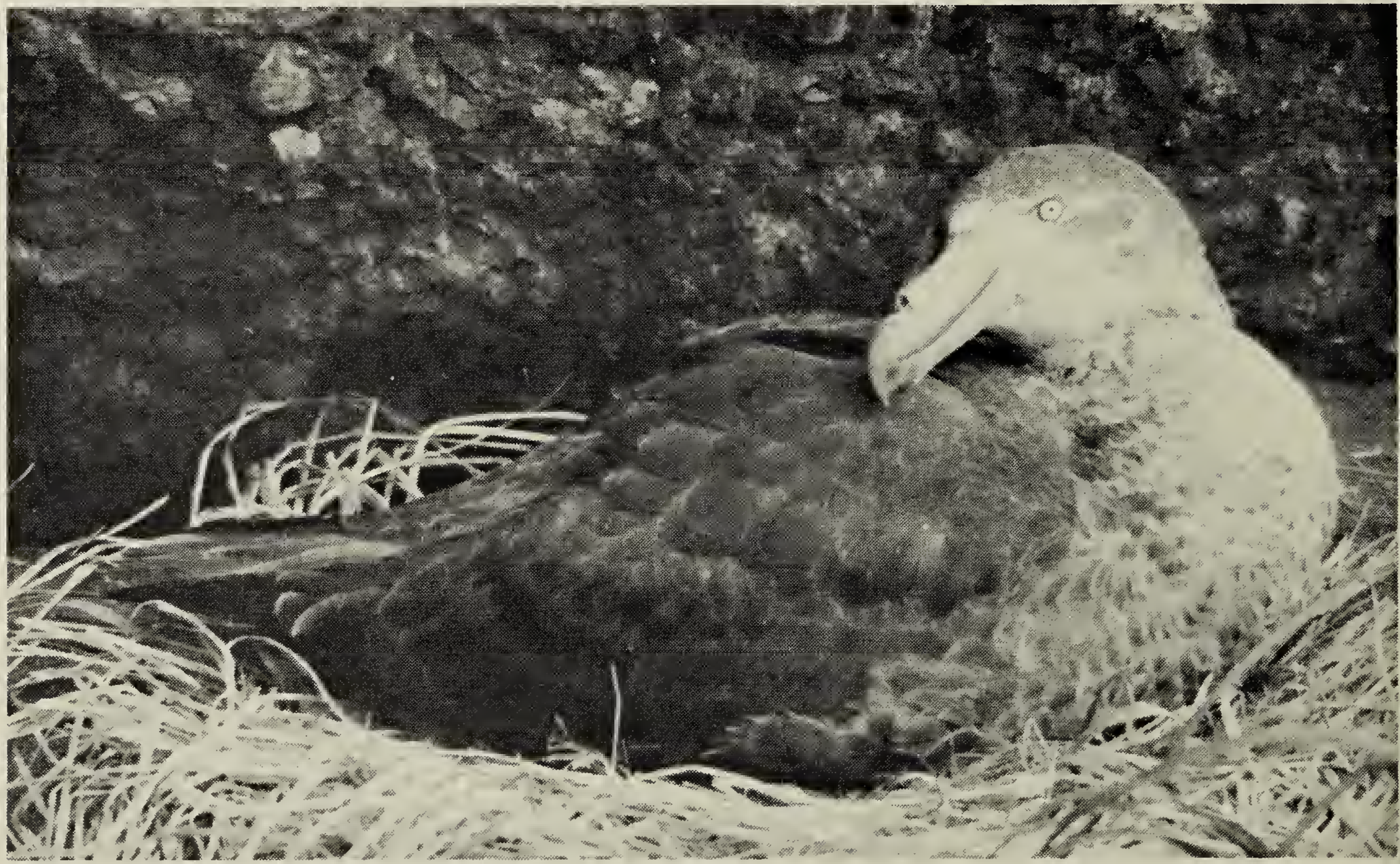
Aside from my own studies, my duties entailed the continuation of the long-term research into the Royal Penguin, Wandering Albatross, Giant Petrel and the Southern Elephant Seal, largest of all the land-based mammals. To anyone with a natural history "bent" this would be a fascinating opportunity. Despite the fact that I recorded only 27 species of birds in the 13 months I was in residence, their uniqueness speaks for

Southern Skua takes unguarded penguin eggs and chicks.

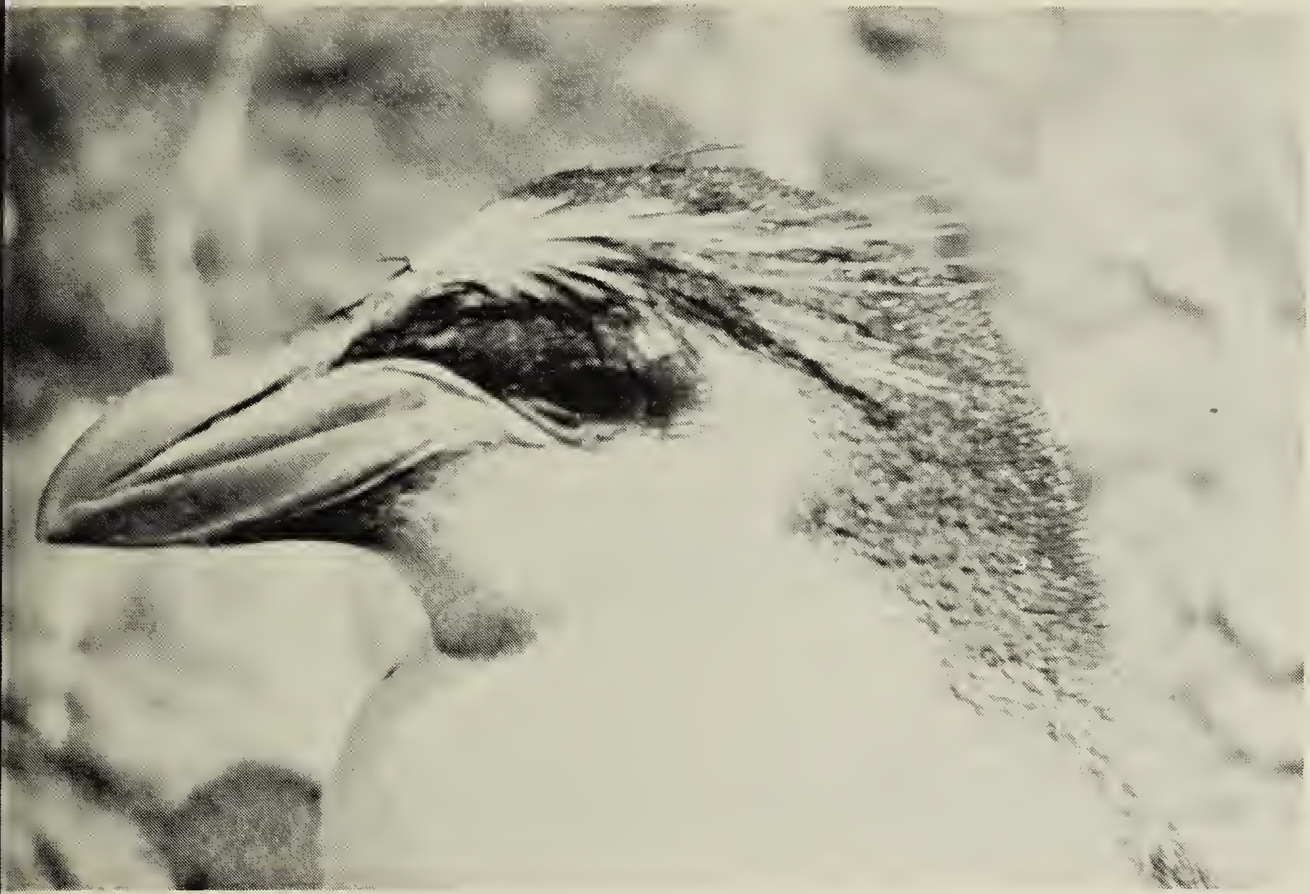
itself. Five penguins, four albatross, six petrels of various types, two ducks, one a Mallard, one cormorant, one tern, one gull, one Skua, a flightless rail (introduced) and five self-introduced passerines from New Zealand round out the list. One of the passerines is the Starling! Wouldn't you know it.

The Royal Penguin which we have been studying the past 12 years is of medium size. It stands about 24" high in typical black and white penguin plumage with a bright red, robust bill and orange superciliar plumes; it weighs about 14 pounds. By nature, the Royal is far from passive and its pugnacious attitude is enhanced by a strong bill, hard flippers and long toe nails and these together usually discourage all but those bipedal. Their main "hold" is to latch on with their bill and then beat with their powerful flippers. This combination really smarts, particularly in the cool weather.

Beginning in late September (the southern spring) the males arrive ashore and take up a small territory in one of the rookeries. (The largest rookery covers 22 acres and holds over 600,000 birds). The male is followed by his mate about 10 or so days later. Towards mid-October, the first egg is laid and for some unexplained reason little attention is paid to it and it is soon lost, having either rolled away or having been taken by the ever-watching Skua. It is only the



Giant Petrel on nest. This bird preys on penguins.
Note heavy hooked bill and large "tube nostril".



Photos by Bill Merilees

t female Royal Penguin. Note robust bill and long superciliary crest.

d and larger egg which is re-
d and incubated. Both male and
le share in the incubation, the
le taking the first stint and the
the second. This lasts about five
s so each bird has had to remain
e somewhat over three weeks
ut food or water, during which
the breeding birds must rely on
fat reserves. While the hen is
e egg, the cock is away feeding
vice versa. At hatching, both
ts are present and feeding
s, a paste of partly digested krill
mp) being passed from the female
e chick cormorant fashion. At
eeding a chick has been known
rease its weight from one pound
o pounds five ounces. Fed once
three to four days the chick
s rapidly and after nine weeks,
g put on over eight pounds, de-
to sea. This is the first week of
ary. Shortly after this the other
arrive ashore to moult, the
er age groups first, with a good
f fat to tide them over the fast.
rst they are sleek but soon their
ers fluff out and begin to fall and
a very ragged stage they depart
to sea, only a fraction of their previous weight.

Briefly, this has been the penguin's year and, from the time when they depart after moulting to the time they arrive back for the next breeding season, they remain at sea. Just how far they travel we have no way of measuring but as the Royal is only known to breed at Macquarie Island and on occasion they have been found in New Zealand and Tasmania, 600 and 900 miles away respectively, the distances are considerable. Aside from their unique form, perhaps the penguin's most remarkable attribute is his ability to navigate. Their only beacon in these misty latitudes is the sun and though this shines less than 10 per cent of the time their punctuality in locating this small speck of land is remarkable, hardly varying more than a day or two each year. This unerring orientation does not end when they have located the Island, as they return, like the salmon of the Pacific, to the same small area where they were raised even though more than 600,000 others of their kind may share the same rookery.

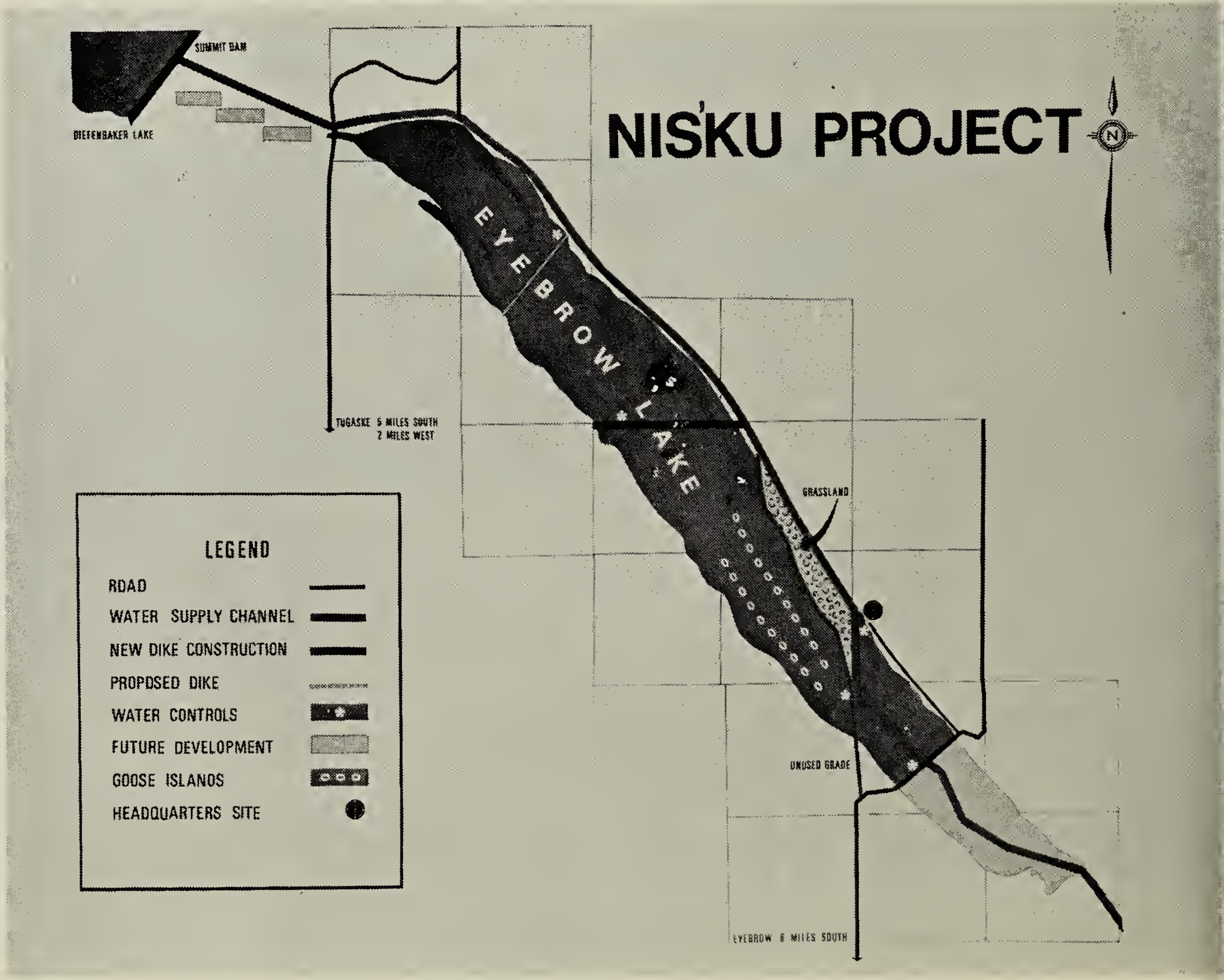
SASKATCHEWAN NIS'KU PROJECT

The Saskatchewan Government deserves praise for its enterprise and vision in planning the Saskatchewan Nis'ku Project to re-establish the Canada Goose in the southern part of the prairie provinces.

Conservationists have long been aware that in the process of settling the west (the changing of huge expanses of grassland plains and marsh areas) ensuing habitat changes threatened the very existence of a bird such as the Canada Goose. Now, with the development of an area ideally situated for the purpose of maintaining waterfowl, Saskatchewan should be assured of the presence of productive flocks of this attractive bird whose name in the Cree language is *Nis'ku.*

The section of the province chosen for the Nis'ku Project is a 2,000 acre marsh on Eyebrow Lake, just below the Summit Dam on Diefenbaker Lake. Since the formation of Diefenbaker Lake flooded valuable habitat in a richly productive wildlife area, the choice of Eyebrow Lake, itself a concentration area for migratory birds is particularly happy.

A glance at the map will show how it is possible to divert a controlled amount of water from the channel leading out of Diefenbaker Lake in order to make the Nis'ku Project function adequately. Dikes and water control structures were built by the DNR construction branch in the latter part of 1968 dividing the Eyebrow Lake area into five management units ranging in size from 110 to 800 acres. Each compartment is designed to allow individual water manipulation and management practices. Additional compartments may be added as required by constructing new dikes. Provision has already been made to fence one compartment this spring to



Eyebrow Lake in mid - 50's

hold the young birds which will be placed on the site in July. Twenty-one earthern islands have been constructed to form basic nesting habitat and resting areas for the wild flock. The location of these islands is clearly indicated on the map.

Through the co-operation of Fred Bard, Director of the Saskatchewan Museum of Natural History, and officials of the New Mexico Bosque de Apache National Wildlife Refuge the project commenced operations this spring.

Mr. Bard was to collect eggs when the geese already located at the Wascana Waterfowl Park laid their first clutch this season. The second clutch laid was also to be collected and incubated. The goslings will be transported to the Saskatoon Game Farm, there to await release on the Nis'ku site. A total of 500 goslings is expected to be available for the initial release. (Incidentally, the nucleus of the Wascana flock will not be affected.)

Twenty-eight adult geese have been live-trapped on their wintering ground in the New Mexico Bosque de Apache National Wildlife Refuge with the co-operation of the New Mexico Game Department. These free-flying birds have been transported to the Saskatoon Game Farm and will be wing-clipped and released on site with the

Photo by Saskatchewan Museum of Natural History

Greater Canada Goose in Wascana Waterfall Park

Saskatchewan Government Photo

Nis'ku Project in Qu'Appelle Valley near Eyebrow. Dike forms marsh management unit. Note nesting islands at extreme left.

younger birds. It is hoped these grown geese will, in later months, lead the goslings to the New Mexico winter migration area along a flyway which experiences light hunting pressure. All geese will be banded as they are released to aid management officials in determining the migration patterns of these birds.

By 1975, it is hoped that a resident breeding flock as well as a wild flock of large Canada Geese will be established at Eyebrow Lake. The resident flock will form the backbone of the production unit and will number approximately 500 pairs. These will be maintained at the headquarter site. It is also hoped that by 1975 the project will have a resident manager, wintering barns, fenced brooding pens, and incubator and all other necessary rearing facilities entailed in a development of this size. It has been estimated that between five to seven thousand Canada Goose goslings will be available on a yearly basis to provide breeding stock for additional lakes and marshes across the province.

Mr. Dave Gray, DNR ecologist in charge of the Nis'ku program has this to say about the project: "The Prairie Canada Goose is an intrinsic part of Saskatchewan's heritage. With the establishment of Nis'ku, an integral portion of our human environment will be preserved . . . "

The effects of the Nis'ku Project will indeed be far-reaching. Not only will this development ensure the survival of a bird which has become a symbol of conservation but it will also encourage the public generally to take a closer look at the whole problem of habitat improvement for our natural wildlife. Planning *does* make the difference.—**Digest from D.N.R. news release.**

A SUCCESSFUL SOLITARY CLIFF SWALLOW NEST

by **Wayne Renaud,** Rosetown

During June and July, 1968, a farmer repeatedly destroyed the nests of a colony of six or eight pairs of Cliff Swallows which were attempting to build beneath the eaves of a two-storey farm house one and one-half miles southeast of Valley Centre, Saskatchewan. One July 1, I noticed Cliff Swallows flying about nearly every building in Valley Centre; the next day I found first signs of construction of a nest under the large eaves of the unused Valley Centre railway station. I presume that this location was a last resort for the swallows for it presented several disadvantages: it was a painted structure; the 10-foot high eaves were unusually low for this species to nest under without the protection of water; and the only available nesting material was in a dugout in a pasture half a mile north of town. Since the July temperatures remained in the vicinity of 80 to 90 degrees, nest-building must have been a strenuous effort.

Solitary nesting in the highly colonial Cliff Swallow is uncommon but has been previously recorded. According to the Bent *Life Histories* series (U.S. Nat'l Mus. Series No. 179, 1942): "it is exceptional to find isolated nests far distant from others of this species." I was told by a neighbor that a single nest of this species had been built on their barn half a mile south of Valley Centre. Often, during the period of observation, flocks of Cliff Swallows were seen flying about buildings in town. These were thought to be from the same disturbed colony, wandering about the country like bands of winged gypsies.

By standing inside the station, I was able to obtain a good view of the activities at the nest site. On July 3 mud was placed in two piles along telephone wires which ran along a 6-by-6 supporting the eave. At first I suspected that two nests were going up side by side as the mud was placed at random along an 11-inch length of wire, Cliff Swallow nests usually being six or seven inches wide. I frequently saw a third swallow flying under the eaves and attempting to land near the nest, but only the one pair was involved in the completion of the nest.

On July 4 there was little activity at the nest and I found no evidence that mud had been brought. They were away most of the day, coming back only for brief periods of rest. I suspected that they were looking for a more favourable nesting location. They were back again the following day, bringing mud to the nest. In the evening of July 7, I found the two piles of mud pellets joined, and additional pellets along the front wall. On July 6 and 7 the nest was rapidly taking shape, on one side a portion of the wall being built right to the roof. On the morning of the 7th I found a broken egg beneath the nest but no eggs in the nest, as it was only partially built. I didn't get back until the 15th on which date there was an unbroken egg on the ground. On the 18th there were two eggs in the nest. On the next day a third egg was laid in the nest. These three eggs hatched and the young left the nest in August.

The finished nest was a curiously built structure. The entrance was two and one-half inches wide and two inches high and was little more than a hole in the front of the mud chamber, with a decidedly more downward than outward slant. The swallows, perhaps in a hurry to complete the nest, had cut the entrance off short. The inner width of the mud compartment was about 10 inches. The distance from the entrance to the rear was about eight inches. I later found it to weigh about one and three-quarter pounds, a little more than the one and one-half pounds average of five nests in my collection.

SOME ASPECTS OF THE BREEDING OF THE WHITE-WINGED SCOTER AT MIQUELON LAKE, ALBERTA

by **Kees Vermeer,** Canadian Wildlife Service, 10015 - 103 Avenue,
Edmonton

During a study on the breeding biology of the California Gull *(Larus californicus)* and the Ring-billed Gull *(Larus delawarensis)* on two islands in Miquelon Lake, Alberta (53° 15′ N and 112° 55′ W), data were collected from White-winged Scoters *(Melanitta deglandi)* nesting among these gulls. Figure 1 shows the date of the first egg laid in 20 nests in 1964 and 1965. Most of the clutches were found during the laying period. A few which had been completed were back-dated from the time of hatching to obtain the date of clutch initiation. The calculation in back-dating was based on one known incubation period of 25 days for this species at Miquelon

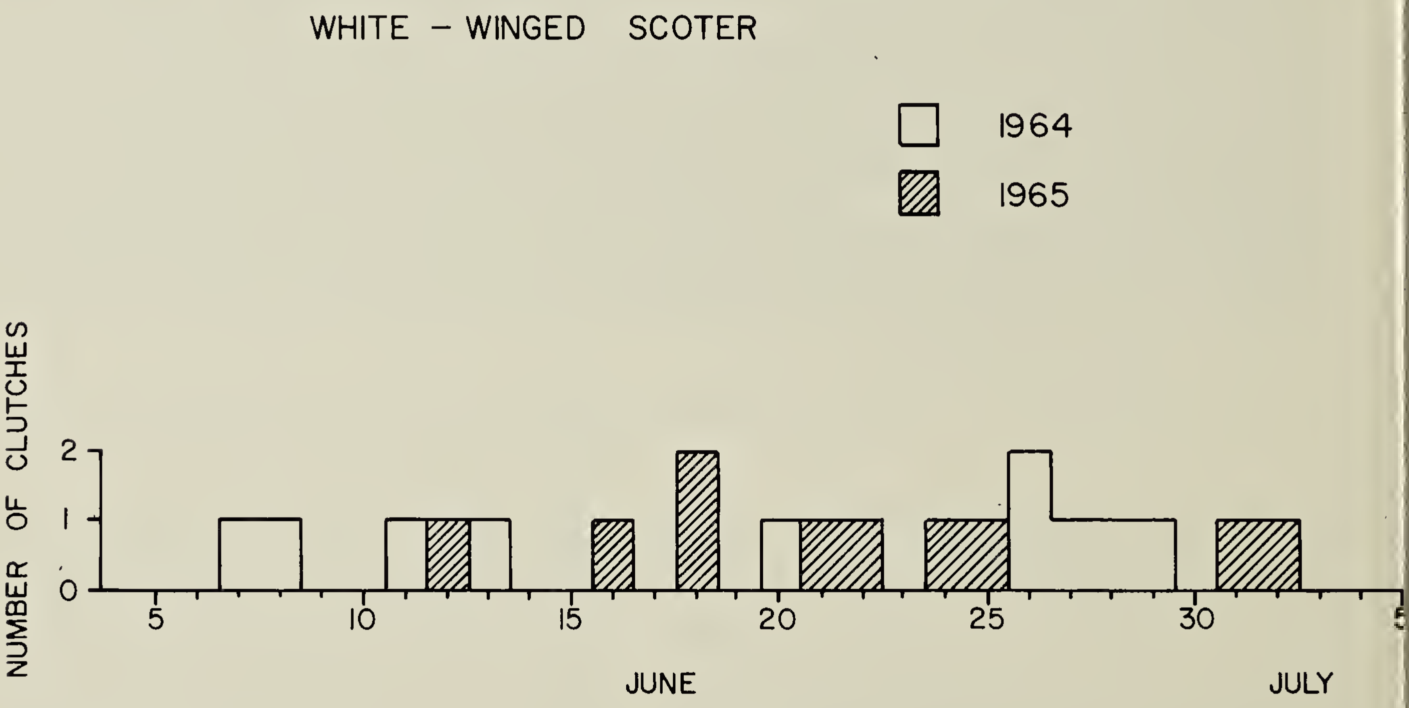


Fig. 1 Distribution of clutch initiation of White-winged Scoters at Miquelon Lake in 1964 and 1965.

Table 1. Calculation of average egg laying interval in White-winged Scoters at Miquelon Lake

Time interval between visits to nests in days	Number of visits	Total number of days	Total increase in number of eggs
1	6	6	4
2	4	8	5
3	1	3	2
4	3	12	7
Total		29	18

Average number of days per egg laid: 29/18 = 1.6 days

Table 2. Distribution in length and width of the eggs of White-winged Scoters compared to those of other duck species breeding at Miquelon Lake in 1964 and 1965

Length in mm.	No. of eggs				
	White-winged Scoter	Mallard	Lesser Scaup	Gadwall	Pintail
73.9 - 72.0	1	....	....	....	....
71.9 - 70.0	16	....	....	....	....
69.9 - 68.0	19	....	....	....	....
67.9 - 66.0	37	....	....	....	....
65.9 - 64.0	24	....	....	....	....
63.9 - 62.0	3	5	2	....	....
61.9 - 60.0	....	10	9	....	....
59.9 - 58.0	....	20	30	2	....
57.9 - 56.0	....	31	43	14	7
55.9 - 54.0	...	21	15	38	15
53.9 - 52.0	....	13	1	32	39
51.9 - 50.0	...	....	....	14	33
49.9 - 48.0	...	...	....	....	6
Total	100	100	100	100	100
Mean in mm.	67.33	56.99	57.55	53.99	52.70

Width in mm.	No. of eggs				
	White-winged Scoter	Mallard	Lesser Scaup	Gadwall	Pintail
49.9 - 48.0	9	....	....	....	....
47.9 - 46.0	59	....	....	....	....
45.9 - 44.0	32	7	....	....	....
43.9 - 42.0	....	25	7	....	....
41.9 - 40.0	....	51	44	3	3
39.9 - 38.0	...	17	47	86	39
37.9 - 36.0	....	....	2	11	50
35.9 - 34.0	...	....	....	....	8
Total	100	100	100	100	100
Mean in mm.	46.33	41.36	40.01	38.60	37.64

Lake. The first White-winged Scoters were observed to arrive at Miquelon Lake on May 6, 1965. Since the first egg was laid on June 11 in that year, the pre-egg period, which is the time between first arrival of the birds on the breeding ground and the date of the first egg laid, was 36 days.

All the observed nests of the White-winged Scoters were situated in dense herbaceous cover. From observation on egg laying intervals the average laying interval appeared to be 1.6 days (Table 1). The eggs of the White-winged Scoters were considerably larger than those of four other duck species found at Miquelon Lake (Table 2).

The clutch size in 12 nests of the White-winged Scoter in 1964 and 1965 ranged from 6 to 16 with an average of 10.2 eggs per nest. Of 10 clutches of known fate, five hatched, four were destroyed by predators, and one was deserted. The five clutches which hatched contained a total of 50 eggs, of which 38 hatched, 10 failed to hatch, and two disappeared.

GOLDEN EAGLES IN CENTRAL SASKATCHEW

by

D. W. A. Whitfield, 1306 Melrose Avenue, Saskatoon
D. W. Davis, Department of Biology, School of the Ozarks, Point Look
Missouri, U.S.A.
J. M. Gerrard, 3851 University Street, Montreal, P.Q.
W. J. Maher, Department of Biology, University of Saskatchewan,
Saskatoon

This paper reports the discovery of five (possibly six) active Golden Eagle nests *(Aquila chrysäetos)* in the Churchill River - Foster Lakes area. These nests are in a north-to-south gap of approximately 540 miles in the previously known breeding range of the species in Saskatchewan. Information on nest sites, food, and behaviour is included in this report.

Methods

The Golden Eagle nests were discovered in July 1968 while we were conducting an aerial survey of the Bald Eagle *(Haliaeetus leucocephalus)* population in central Saskatchewan. We searched for Bald Eagle nests by flying along lake shores and rivers in a fixed wing, pontoon-equipped aircraft. Detours were made to check nearby cliffs for eagle nests. George Linkletter, Saskatchewan Department of Natural Resources, Pelican Narrows, told us the location of the first Golden Eagle nest we saw, and we knew of the second from past years; the remainder of the nests were found in the course of the survey.

Food remains were collected at the nests, identified and recorded. In addition, 19 regurgitated pellets were collected from two nests. The cont
were identified and their vol
determined.

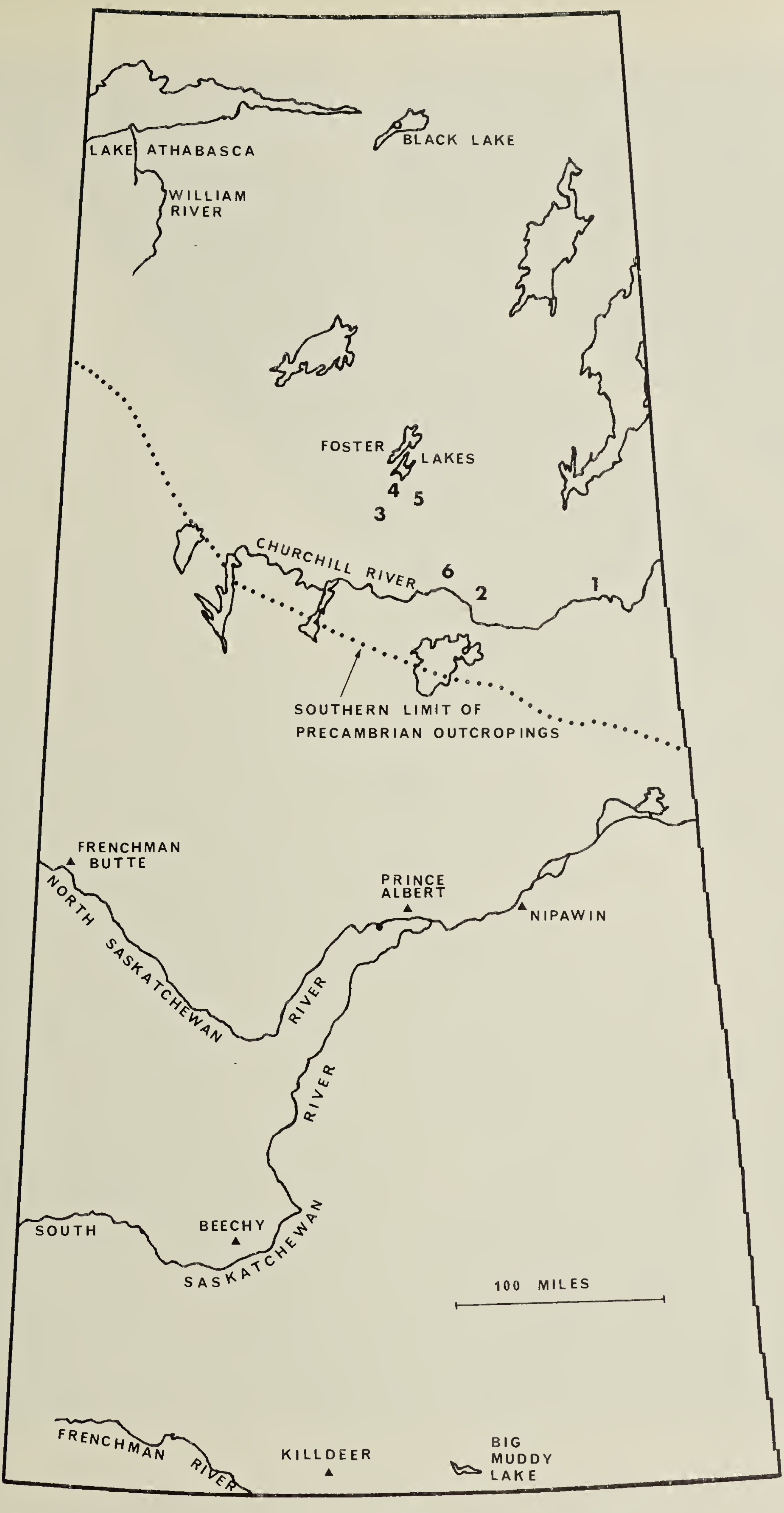
Previous reports of Golden Eagle breeding in Saskatchewan

There are two records of Go
Eagles nesting in the far nort
part of the province. In 1892 Ty
saw an active nest east of Black L
(Tyrrell and Dowling, 1896), an
1962 Frank Heidelbauer found a
near the William River about 40 n
south of Lake Athabasca (N
1963). Nero reported that adults
seen at the north shore of Lake A
basca in July 1961.

Adults were seen in the badl
south of Wood Mountain in June,
(Macoun and Macoun, 1909), but
first published report of Golden Ea
nesting in the southern third of
katchewan was by Santy in 1958.
a second note (1959) Mr. Santy
vealed that he had observed ac
aeries on the Saskatchewan R
near Beechy nearly every year fo
years. His first report prompte
search in other areas by staff m
bers of the Saskatchewan Museu
Natural History, and they found n
in the Big Muddy Valley and the

TABLE 1. Data on nests of the present study

Nest number	Date found	Number of young	Number of adults seen	Direction cliff expo
1	July 9	2	0	NE
2	July 9	2	1	E
3	July 14	1	1	E
4	July 14	2	1	SSE
5	July 15	2	0	WSW
6	July 15	1 or 2	0	W



Map of Saskatchewan showing Golden Eagle nest locations. The large numerals correspond to the nest numbers in Table 1.

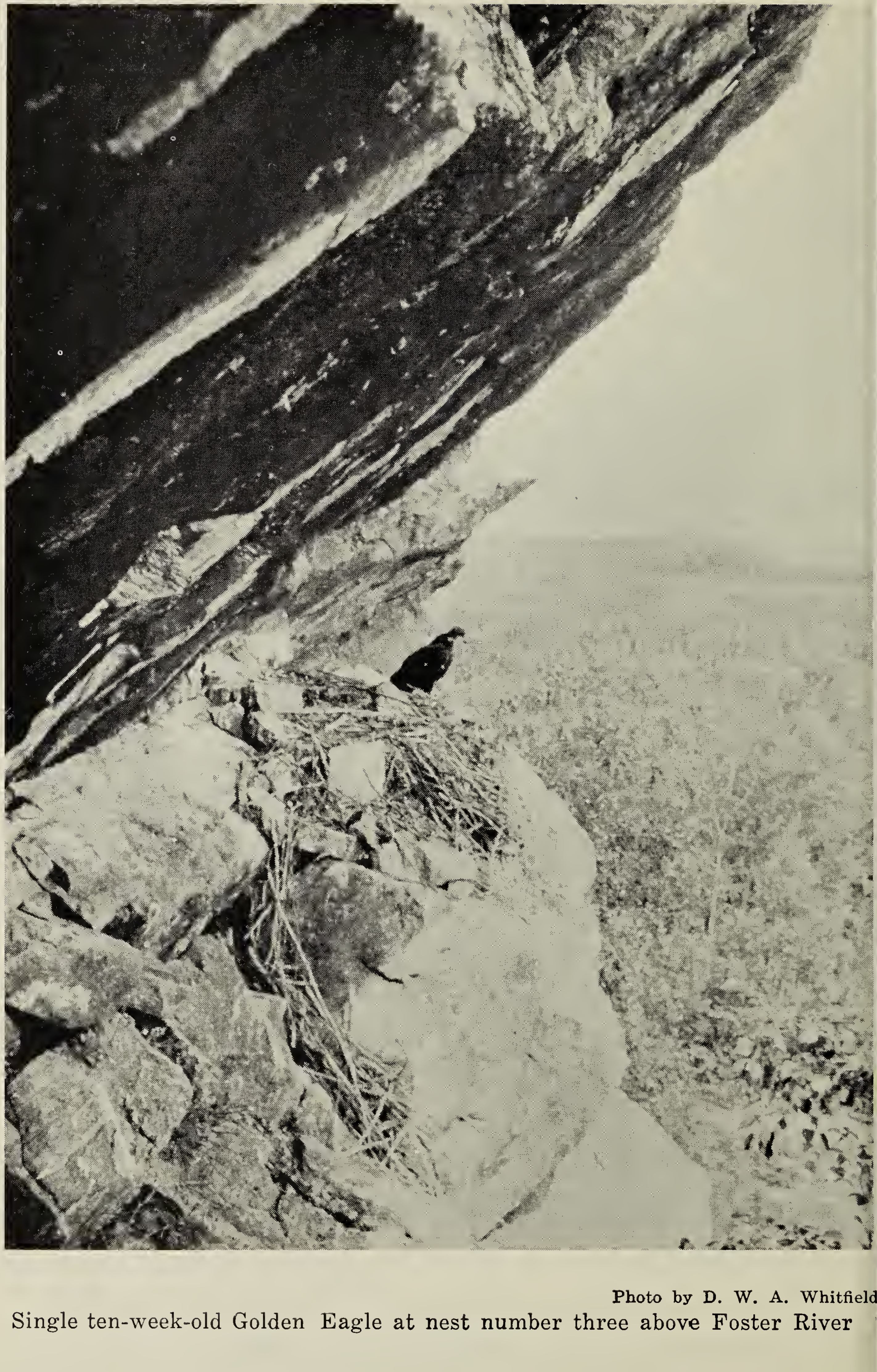


Photo by D. W. A. Whitfield

Single ten-week-old Golden Eagle at nest number three above Foster River eer Badlands (Fyfe, 1959). Nests ave since been found in the valley of he Frenchman River (pers. comm. . W. Fyfe). One pair of Golden agles nested along the North Sasatchewan River near Frenchman utte about 35 years ago (pers. comm. . D. Symons) but it is not known if here is still an active nest there.

In the wide gap between these orthern and southern breeding anges adults have been seen during he breeding season but no nests were ound previous to the present study. . C. Furniss identified an adult near rince Albert in June of 1943, and M. . Street saw an adult on May 5, 1937 (Houston and Street, 1959). Adults ave been seen occasionally in the oster Lakes area (pers. comm. C. L. erguson and C. Mahoney).

he Aeries

All of the nests were on rock cliff edges. The nest number, date of findng, number of nestlings and adults een, and cliff exposure are shown in able 1. The locations of the aeries re indicated on the map; they are ear the centre of the Boreal Forest, n Precambrian outcroppings, and in egions of low to moderate topograhic relief.

We visited nests 1, 2, 3 and 5 and anded seven young birds. Access to est number 2 was by vertical descent n a rope. A rope was also needed for afety in climbing to nest 5, but nests and 3 were easily walked to.

In all cases the eaglets were well eathered (at an estimated age of even to 10 weeks) and quite difficult o identify to species from the airraft. An adult Golden Eagle was een flying from nest 4. No adults were at nest number 6, and we were unable to make a positive identification of the species because we could not land the aircraft near the nest. From the general appearance of the nest and nest site, and because of its distance from any major body of water, we feel that this nest was occupied by Golden Eagles. Only two other cliff aeries were seen during the survey, one inactive and the other occupied by Bald Eagles.

Aeries 1 and 2 were low and difficult to see from the air because of screening by trees, but the others were high and exposed. The difference in aerie height was accounted for by the type of cliffs available in each region.

A local resident (Bill Chanin) told us that nest 2 had been in use since 1962. Whitfield saw it in June of 1965, when it showed signs of current use, but he presumed it was occupied by Bald Eagles. It was seen again in 1966, when it appeared to be empty.

Food Habits

The nests contained the remains of Common Raven *(Corvus corax)* feathers, one Mink *(Mustela vison)*, and four Snowshoe Rabbits *(Lepus americanus)*. In some cases rabbit fur made up a large portion of the covering of the nest. Pellet contents show that the young eagles were being fed primarily Snowshoe Rabbits (Table 2). Rabbit remains were found in 18 of 19 pellets. Remains of birds, Mink and miscellaneous materials made up the rest of the pellet matter. The skeleton and hide of one Mink were in the same nest as the three pellets in which Mink fur was found. An assortment of grasses, conifer needles, twigs, bark, green leaves (alder, crow-

ABLE 2. Contents of 19 pellets regurgitated by Golden Eagle nestlings

ood item	Per cent of pellet contents by volume	Absolute frequency	Per cent frequency
nowshoe Rabbit	81.1	18/19	95
ink	4.1	3/19	15
ird	11.9	12/19	63
emainder (non-animal content)	2.9	18/19	95

Photo by J. M. Gerrard

Ten-week-old Golden Eagle at nest number 3, Foster River, July 1968.

berry, aspen), mosses, lichens, and pebbles were found in the pellets, These materials could serve a dietary function or as an aid in pellet formation, or may serve no function.

Food habits of the Golden Eagle have been summarized by Bent (1937) and McGahan (1968). There is a striking similarity between the food habits of Montana eagles as reported by McGahan and the eagles at the four nests we visited (Table 3).

Relationship with Bald Eagles

During the survey, we found more than 10 times as many Bald Eagle as Golden Eagle aeries. The two species occupy different ecologic niches with little competition; Golden Eagles usually nest on cliffs, eat mainly rabbits (see section on food habits) and hunt over the land, whereas Bald Eagles nest almost exclusively in trees and eat mainly fish (only one rabbit was seen in 55 Bald Eagle nests examined). We suspect that lack of suitable nesting territory (cliffs for nesting and open or burned areas for hunting) limits the Golden Eagle population in this area.

In one instance only 1.3 miles separated a Bald Eagle nest and a Golden Eagle nest. The next smallest distance was 3.0 miles.

Behaviour

One of the best known particulars of Golden Eagle behaviour is their

ABLE 3. Comparison of foods eaten by Montana Golden Eagles and by those of the present study

lass	Present study (per cent)	Montana Golden Eagles (1962-1964*) (per cent)
ammals	85.2	87.0
irds	11.9	12.4
eptiles	0.0	0.4
ther	2.9	—

* Data from McGahan, 1968.

ypical response to the sight of human ntruders near their nests; they immeiately fly away from the area (see, or example, Bent, 1937).

Our observations suggest that their sual reaction to the sound of human oices nearby is different. We walked o nest number 2 from a small lake bout one-half mile away and approached it from above. From the cliff op it was possible to see only the xtreme outer edge of the nest, about 5 feet below. It took five minutes to ind a position precisely above the est and to tie the climbing rope. During this time we were talking and noving noisily about. When the coiled ope was heaved over the cliff edge, n adult eagle flew off the nest and ut of sight. At nest 3, we approached he bottom of the cliff from the side, nd our loud conversation should have een clearly audible at the nest. It vas not until we came into sight of he nest, at a distance of about 40 ards, that the adult bird flew away.

Incidents similar to these have been een by others, including Bent (1937), . S. Houston (pers. comm.) and by Vhitfield on two occasions at different eries in the southern part of the rovince.

As is to be expected in a species vith such a range of behavioural responses, these patterns are not rigidly dhered to. For example, Santy (1958) ailed to dislodge a brooding eagle rom its nest even by approaching, in ight of the bird, to within a few feet elow the nest and throwing clods of lirt onto the nest top, and Gerrard bserved an adult fly from its nest as several persons quietly approached the cliff top, out of sight of the nest.

Conclusions

We suggest that Golden Eagles nest in small numbers throughout the Boreal Forest region of western Canada where their numbers are limited by suitable nest sites and hunting areas. This population could be the source of the many Golden Eagles which are seen on the open prairie during the winter.

Acknowledgements

We wish to acknowledge the financial assistance of the Canadian Wildlife Service and of the National Research Council of Canada through its grant to Dr. W. J. Maher. Our thanks to persons who assisted us during the survey, most especially George Linkletter.

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BIRD NOTES FOR THE ELBOW REGION, SASKATCHEWAN*

by **Michael A. Gollop,** 2202 York Avenue and **Alan R. Smith,** Department of Biology, University of Saskatchewan, Saskatoon

For two summers B. E. Felske, D. A. Sadler, and the authors have studied birds on the Matador Grassland Project in an area between Kyle and Beechy on the north side of Lake Diefenbaker. Most field work was done within five miles of the International Biological Programme field station near Matador (Sect. 15-20-13W3), approximately 27 miles southeast of Kyle. This is in the southwestern corner of a region for which Roy (1964) recently compiled a preliminary list of birds. This region covers a rectangle 24 miles from north to south (Townships 19-22 inclusive) and 30 miles from east to west (Ranges 11-15 inclusive, west of the Third Meridian). Roy's report was published prior to the construction of Gardiner Dam on the South Saskatchewan River and the subsequent formation of Lake Diefenbaker.

In 1967 we were in the area from May 22 to August 28, and in 1968, from May 2 to September 27. Several visits were made in winter months to obtain data on resident species. Of the 222 species recorded by Roy, 149 were observed by us. Six additional species are reported for the Elbow region: five were recorded by us; one species recorded in the literature had evidently been overlooked by Roy. This brings the total for the region to 228 species. Apparent changes in status of several species are recorded as well as records of two species considered rare in the region.

Species not Listed by Roy

HARLEQUIN DUCK (*Histrionicus histrionicus*). As reported by Houston, Bard, and Nero (1958), on May 31, 1934 an adult male was collected out of a flock of "several pairs" at Saskatchewan Landing. The locality is within the extreme southwestern corner of the Elbow region.

OSPREY (*Pandion haliaetus*). An individual, apparently southbound, landed at the field station on September 9, 1968.

PIPING PLOVER (*Charadrius melodus*). A female and two downy young were seen on August 10, 1967, near an alkali slough south of Clearwater Lake. The young were collected and are now in the University of Saskatchewan Biology Museum. This is a new breeding locality for Saskatchewan; the nearest known breeding localities include Crane Lake, Old Wives Lake and Strehlow.

YELLOW-BELLIED FLYCATCHER *(Empidonax flaviventris).* A migrant was collected in a small ravine 2.5 miles east of Saskatchewan Landing on August 13, 1968.

BAY-BREASTED WARBLER *(Dendroica castanea).* On August 12, 1968 an individual in fall plumage was observed in a large coulee 5.5 miles east of Saskatchewan Landing.

BREWER'S SPARROW (*Spizella breweri).* A singing male was observed one mile southwest of the Research Station, along the brushy slopes of a small coulee on June 18, 1968. This sighting is far to the north of the known breeding range in the province. The date and behaviour suggest breeding but more information is needed.

Apparent Status Changes

The following species of birds were noted at times, places or in numbers different from previous data.

COMMON LOON (*Gavia immer*) Two were noted on Lake Diefenbaker in 1968. Loons may be expected to be more common in the future due to the influence of the large impoundment Roy gives only two records.

SNOW GOOSE (*Chen caerulescens).* Over 500 were observed September 26, 1968, on a slough approximately 5 miles north of the Beechy

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*Issued as Canadian IBP No. CCIBP 22.

Co-op Farm. This compares with Roy's previous high count of 270 birds.

CINNAMON TEAL (*Anas cyanoptera*). A male was observed at a small dam approximately 1.5 miles north of the field station on May 29, 1967. Roy gives one record.

RED-TAILED HAWK (*Buteo jamaicensis*). Recorded as a rare migrant in 1967 and 1968. Roy reported it an uncommon migrant and summer resident, most regular in the South Saskatchewan River Valley and adjacent coulees. Rising waters, which flooded many of the large trees in the river valley, have probably been responsible for the apparent decline in population.

RED-EYED VIREO (*Vireo olivaceous).* Not recorded in 1967-1968. Reported by Roy as an "uncommon transient . . . likely breeds in the South Saskatchewan River valley . . ."

WARBLING VIREO (*Vireo gilvus*). Not recorded in 1967-1968. Reported by Roy as a "fairly common summer resident." This and the above species are the most striking examples of status change effected by the flooding of the valley.

YELLOW-BREASTED CHAT (*Icteria virens*). We recorded one individual on July 28, 1967. Roy notes that a Saskatchewan Museum of Natural History party found them fairly common in the valley from Demaine westward in June of 1961.

BULLOCK'S ORIOLE (*Icterus bullockii*). Three were sighted immediately south of the field station on May 27, 1967. Considered a "sporadic summer visitant" by Roy.

Acknowledgements

We wish to thank our fellow team members and Dr. William J. Maher, University of Saskatchewan, who supervised the programme. Financial support was by the National Research Council.

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NESTING RECORDS OF THE YELLOW RAIL IN SASKATCHEWAN

by **C. Stuart Houston,** Saskatoon

The only unequivocal published record of a Yellow Rail nest in Saskatchewan is that of Edward Arnold, an oologist who found a nest with four eggs at the west end of Pasqua Lake west of Fort Qu'Appelle on May 31, 1895 (Arnold, 1896). In 1924, R. D. Symons found a nest recently trampled by cattle, believed to be of this species, in the Arm River Valley east of Davidson (Symons, 1956). The following records for the Yorkton area seem entirely plausible and therefore worth recording.

In the early 1930's, the late Charles H. Maddaford ran over two nests while mowing hay, on the NW quarter of section 16, township 23, range 3, west of the second meridian — nine miles west and three miles south of Saltcoats, Saskatchewan. Both nests were in long grass on damp ground at the edge of water and each contained six or eight eggs. A small yellowish rail flushed off each nest, and he was certain they were not Soras, a familiar species whose nests he found nearly every year. The eggs were also different from those of the Sora; in telling me of this more than 20 years later, he thought they were lighter in color. He was certain of his identification of both the birds and their eggs because he had checked them carefully at the time in his bird book.

Mr. Maddaford showed me the book from which his identification had been made, but unfortunately much use had worn the letters from its cover and the title page had fallen out. There was no other identification anywhere in the book! He gave me the book, which I sent to a dealer in second-hand nature books but he could not identify it. This winter I resumed my quest and sent clues (such as the number of pages and plates, the author's residence near Fresh Pond in Cambridge, Massachusetts, and familiarity with eastern Canadian records) to Kathleen Anderson in Middleborough, Massachusetts. She obtained the answer fom Joseph A. Hagar, retired state ornithologist for Massachusetts. He identified the book as: *A popular handbook of the birds of the United States and Canada* by Thomas Nuttall, new revised and annotated edition by Montague Chamberlain, Little Brown & Co., Boston, 1905.

Knowing Mr. Maddaford's reliability and his familiarity with the Sora, and his use of the Nuttall-Chamberlain book (pages 189 and 194 of part 2), I have little doubt that his identification was correct.

The late Frank Baines also told me that about 1900 he had found a single nest of the Yellow Rail near Crescent Marsh. This would be only about three miles northwest of the location of the two nests found years later by Maddaford. Baines was also very familiar with the Sora and its nests. Unfortunately he had no written record of this, and when he told me of it he was relying on his memory of 50 years before.

The Yellow Rail is a small secretive bird that skulks in marshy areas. It is rarely glimpsed and even more rarely can it be flushed to show its distinctive white wing patches. It is best recognized by its sound — like two stones being tapped together. Symons (1956) has given us the best account of the species in Saskatchewan, and a detailed account of Manley Callin's experiences in the Qu'Appelle Valley area will appear in his forthcoming publication *Birds of the Qu'Appelle Valley*. It has been recorded as far north as Prince Albert (Furniss, in Houston & Street, 1959), Emma Lake (Mowat, 1947) and in a grass muskeg near the north end of Montreal Lake, June 30, 1948 (Mowat, unpublished mss.).

The first Saskatchewan specimen was caught by E. E. Boynton by placing a hat over it in late August 1929, on the hay flats near Sagathun post office, 16 miles north of Maple Creek. The feathers were identified by P. A. Taverner (Godfrey, 1950). The next specimen was taken by Mrs. T. Willers of Viceroy, on May 31, 1930, but no details are given (Potter, 1943). The next was collected on June 14, 1932 in a marsh at the north end of Last Mountain Lake; Albert C. Lloyd, with the Carnegie Museum party, finally captured it alive by falling on it from above (Todd, 1947)! The first specimen in the Saskatchewan Museum of Natural History was collected by R. D. Symons, three miles east of Battleford in 1934. Symons reported that at least three pairs were evidently nesting on the flats but that year and the following year all efforts, including dragging ropes through the marshes, failed to locate a nest (Bradshaw, 1935 and Symons, 1956). Ronald and Donald Hooper collected two specimens at the junction of the Bowman and Shand Creeks, north of Somme, on June 10, 1954 and sent one specimen to the S.M.N.H. (Hooper, 1959).

Additional specimens are reported by Belcher (1962) and Anweiler (1964).

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FURTHER NOTE ON KNOT RECORDS FOR MANITOBA

by **Martin McNicholl,** Zoology Dept., University of Manitoba, Winnipeg

Mr. Gordon J. Smith of Winnipeg as kindly drawn my attention to two anitoba Knot records not included n my recent report on this species *Blue Jay,* 27:28-35). One is of a ale specimen taken at Lake St. artin on June 13, 1935, and reported n *The birds of the Lake St. Martin egion, Manitoba* by T. M. Shortt and . Waller (Contr. Roy. Ont. Mus. ool., No. 10, 51 pp., 1937). These uthors state: "This species can only e recorded as a rare spring and early ummer migrant." The other is an bservation by Mr. Smith and Harold . Hosford of a close group of seven nots observed at West Shoal Lake n May 28, 1961.

In addition, I overlooked a record f eight Knots "noted by Taverner's 937 party" on June 2, 1937 at Reader Lake, near The Pas (W. E. Godfrey, 1953. *Notes on birds of the area of intergradation between eastern prairie and forest in Canada.* Bull. No. 128, Ann. Rept. Nat. Mus. 1951-52, 52 pp.). There is also a record of four seen on June 9, 1946 at Crean Lake within the boreal forest of Saskatchewan (J. D. Soper, 1952. *The birds of Prince Albert National Park, Saskatchewan.* Can. Dept. Res. and Devel. Nat. Parks Branch, Can. Wildl. Ser. Series 2, No. 4, 83 pp.).

I would like to point out a typographical error in my paper (*Blue Jay,* 27:28-35). The personal communication with D. R. M. Hatch (Table 1) should read 1968, not 1966. The date, June 2, 1968, for his observation at Oak Lake is correct.

A KNOT RECORD FOR THE ALBERTA-SASKATCHEWAN BORDER

by **Hans Blokpoel,** Canadian Wildlife Service, Saskatoon

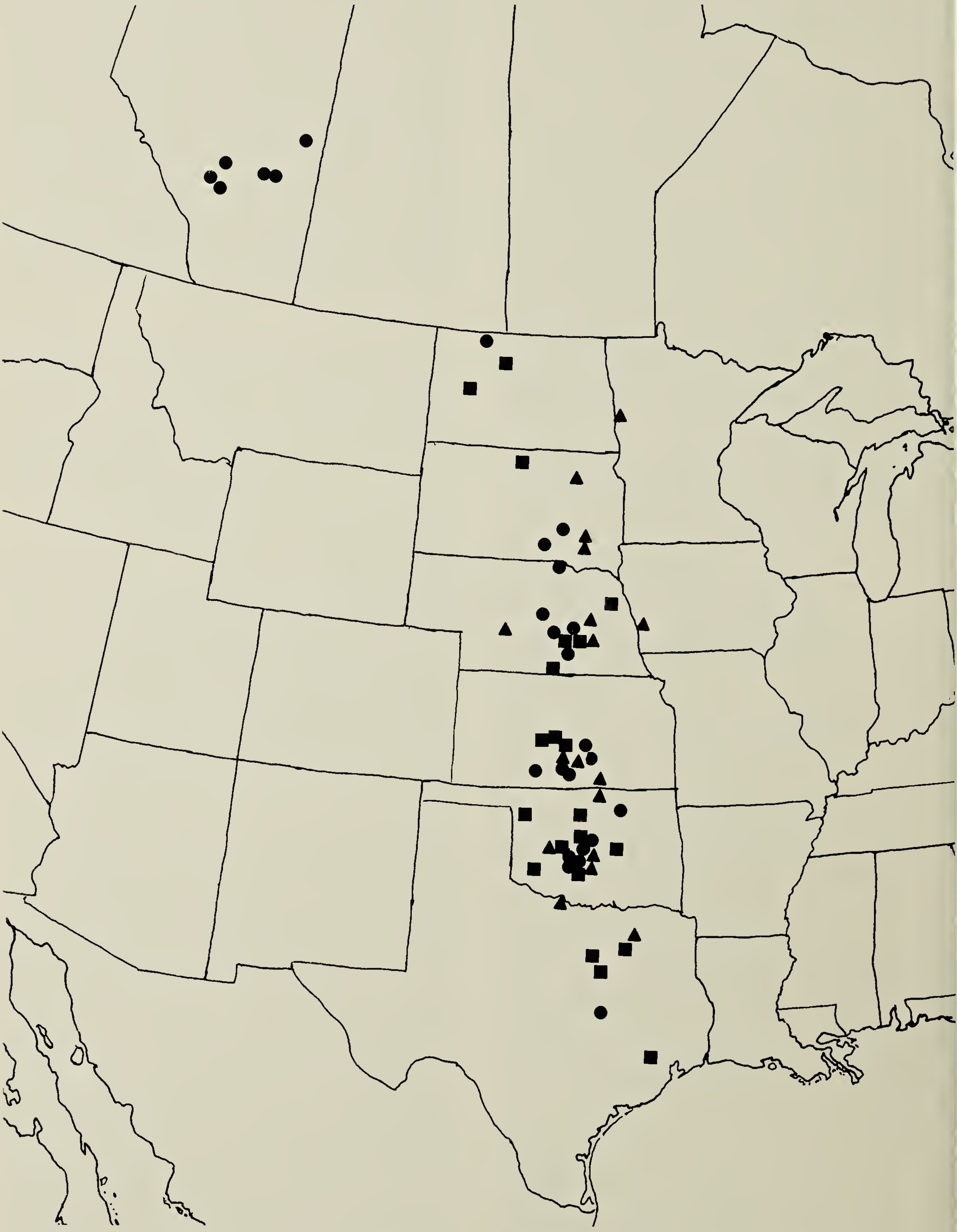
On June 16, 1968, my wife and I bserved a Knot resting on the west hore of Cold Lake, which is located ithin the Boreal Forest on the lberta - Saskatchewan border. The ird was observed at English Bay latitude 54° 34′), a flat, sandy shore. e observed the bird from our car or about 15 minutes with telescope nd binoculars, using Peterson's *A eld guide to western birds,* 1961, and *he birds of Alberta* by Salt and ilk, 1966. This observation helps to ll the "considerable gap in locations of Knots] on the prairies" described y Martin K. McNicholl (*Blue Jay,* 7:28-35).

When discussing this gap in locaons McNicholl remarks that "These actors indicate that there may be o different pathways involved, one assing through *western or central lberta,* the other east of Manitoba, nd occasionally through eastern Sasatchewan and Manitoba." I do not think that this hypothesis can be supported. McNicholl takes his data for Alberta mainly from Salt and Wilk who map the Knot's migraton over the *eastern* part of this province. In Saskatchewan Knots have been observed in the area around Saskatoon for several successive years. Since the number of reporting bird watchers is not large in the area between Saskatoon and the Saskatchewan-Alberta border, it may not be wise to attach much significance to a vacuum for that area.

I agree with McNicholl that more information is needed to determine in more detail the course of the Knot's migration. The fact that all but one of the recent records for southern Saskatchewan involve spring observations might be due (at least partially) to the fact that spring migrants are more conspicuously coloured and usually migrate in larger flocks than fall migrants.

RECOVERIES OF THE COMMON CROW BANDED IN SASKATCHEWAN

by **C. Stuart Houston,** 863 University Drive, Saskatoon



Recoveries of Common Crows banded in Saskatchewan (Saskatchewan recoveries excluded). Note: Squares represent direct recoveries (same year). Triangles—January 1 to June 30 of the following year. Circles—more than one year old.

Saskatchewan crows appear to follow a remarkably narrow migration flyway, more restricted than for any other Saskatchewan species. The 59 U.S.A. recoveries are confined to the narrow tier of states from North Dakota to Texas (see map), with two minor exceptions, of crows that crossed over to the east bank of the Red and Missouri Rivers, respectively, to be shot just within the borders of Minnesota and Iowa. The great majority were shot and since crows are hunted the year round, an unusually large number were recovered in the second six months of their life —after January 1st of the following year. Such birds are listed as "–1 yr." of age, and are depicted as triangles on the map; hence there are more triangles on the crow map than for other species. Saskatchewan recoveries are not mapped, but two crows reached an age of eight years.

Special mention must be made of the extensive banding by Fred G. Bard in 1936, 1937 and 1938. Unlike the immatures (almost all nestlings) banded by other banders, these were adult crows trapped and banded as part of a crow control campaign. At that time, crow predation on duck nests was believed to play a large role in the decline of waterfowl numbers. To encourage hunters to shoot crows, there were prizes for shooting banded crows and certain band numbers carried more valuable awards. In 1938, for example, 250 crows were banded. They were released at widely different Saskatchewan points, usually two at each ten mile interval. Hunters soon learned to shoot selectively those crows with bands and continued this even after Mr. Bard resorted to painting the bands black to make them less obvious in the sunlight!

Thus Bard's adult crows had an unusually high number recovered in Saskatchewan the same year as banded (96), compared to Saskatchewan in later years (31), and a relatively small number were recovered in the United States (18, with none

Trapping adult crows for F. G. Bard's banding projects.

direct, before January 1st). Six were recovered from Alberta in later years. No nestling crows raised in Saskatchewan have yet been recovered in Alberta, and one can only assume that some crows of Alberta origin share the same flyway, with the birds raised in Saskatchewan.

The following records of sixteen banders are from computer printouts obtained from the Canadian Wildlife Service, through Dr. J. B. Gollop. After the date of banding, the next column lists "A" for adult, "I" for immature, "U" for unknown and "L" for nestlings or local flightless young. In fact, most of the "immatures" were banded in the nest but a differentiation was not made in the records of those days. "Direct" means a bird recovered during its first southward migration, before December 31 of its first year. 373-0992 means 37° 30′ N. and 99° 20′ W.

On the map, squares represent the direct recoveries, to December 31 of first year, triangles represent the next six months, and circles represent birds more than one year of age.

Banded by R. H. Carter, Muscow, Sask. (504-1035): (155 banded)

June 24/23. I. Shot April 18/24 (–1 yr.) Warner S.D. (451-0982).
June 30/26. I. Shot March 26/27 (–1 yr.) Parkston, S.D. (432-0975).
June 21/31. I. Shot April 13/36 (–5 yr.) Kenmare, N.D. (484-1020).
June 26/32. I. Shot mid-Nov./32 (direct) Franklin, Nebraska (400-0985).
June 19/52. I. Shot Jan. 11/53 (–1 yr.) in Kansas (370-0980).
Local: Shot at 1 month, 2 yrs., 4 yrs., 6 yrs. and 7 yrs. and killed by dog at 5 yrs.
In Sask.: Poisoned at Craik at 1 yr., found dead at Neville –2 yrs., injured Odessa –1 yr.
Shot at Windthorst 1 yr., North of Grenfell –4 yrs., Indian Head 5 yrs.

Banded by J. R. Carter, Muscow, Sask. (504-1035): (11 banded)

June 30/34. L. Shot Jan. 4/38 (–4 yr.) in Oklahoma (345-0975).
June 30/34. L. Shot Nov. 6/34 (direct) in Kansas (381-0990).
In Sask.: Shot at Meota –2 yrs.

Banded by J. A. Briggs. a)Biggar (503-1051); b) Buffalo Pound L. (503-1051):

June 15/27. I. Shot Oct. 11/27 (direct) in Nebraska (425-0985).
June 28/27. I. Shot Nov. 13/27 (direct) in Kansas (380-0982).
July 15/39. I. Shot Feb. 26/41 (–2 yr.) in Kansas (380-0974).
Local: Hit by train same month, shot same month, shot same year.
Other Sask.: Biggar to Xena (514-1053) at 8 yrs.; Regina to Valley Centre (514-1075) at 1 yr.

Banded by J. A. M. Patrick, Yorkton, Sask. (511-1052):

June 19/31. U. Shot Jan. 16/32 (–1 yr.) in Oklahoma (352-0984).

Banded by George H. Lang, Indian Head, Sask., (503-1034): (83 banded)

June 23/24. I. Shot Jan. 21/25 (–1 yr.) Lexington, Okla. (350-0972).
June 19/32. I. Shot mid-Feb./35 (–3 yr.) in Oklahoma (368-0968).
Local: Shot next month and 8 yrs.; Killed result of weather –2 yrs.

Banded by Wotherspoon Bros., Hyas, Sask. (515-1021): (23 banded)

June 24/34. I. Shot Jan. 21/36 (–2 yrs.) Sargent, Nebraska (413-0992).
June 24/34. I. Shot Dec. 22/34 (direct), Wisner, Nebraska (415-0965).
June 25/37. I. Found dead Feb. 15/39, (–2 yrs.), Blanchard, Okla. (350-0973).
Also 3 shot locally same month; 1 shot at Fulda, Sask. at –6 yrs.

Banded by W. F. Hammond, Cupar, Sask. (505-1041): (150 banded).
June 3/33. A. Shot Oct. 14/33 (direct), Rush Springs, Okla. (344-0975).
June 27/33. A. Shot Nov. 28/38 (5 yrs.) Mullinsville, Kansas (373-0992).
June 30/33. A. Shot March 18/34 (–1 yr.) Ashton, Kansas (370-0971).
July 3/34. A. Shot early Nov./34 (direct), in Texas (323-0972).
July 3/40. I. Shot Dec. 3/40 (direct), Prague, Okla. (352-0964).
July 3/40. I. Shot March 24/41 (–1 yr.) York, Nebraska (405-0973).
Local: Shot –3 yrs., shot at nearby Markinch at 4 and 5 yrs. and injured at Markinch at 1 yr. and found dead at Dysart at –2 yrs.
Other Sask.: Poisoned at Grenfell at 1 yr.

Banded by J. A. Gold, Golden Prairie, Sask. (492-1041):
June 23/35. I. Band obtained May 4/36 (–1 yr.) Radville, Sask. (492-1041).

Banded by Farley M. Mowat, Saskatoon (520-1064):
Local: 1 shot 2 yrs. later.

Banded by R. O. Hedlin, Renown, Sask. (513-1053):
June 23/38. I. Shot Nov. 5/38 (direct) in Texas (321-0971).
June 24/38. I. Shot Feb. 10/40 (–2 yr.) in Oklahoma (353-0983).
July 1/38. I. Caught in trap Nov. 27/39 (1 yr.) in Nebraska (411-0981).
Sask.: 1 shot at Tichfield at 1 yr., and shot at Lanigan at 1 yr.

Banded by C. S. Houston, Saltcoats, Sask. (510-1020 and 1021): (127 banded)
June 22/57. L. Shot March 5/60 (–3 yr.) Hastings, Neb. (403-0982).
June 6/58. L. Shot Nov. 2/58 (direct) Blair, Okla. (344-0991).
June 9/58. L. Shot Oct. 25/58 (direct) Grand Island, Neb. (405-0982).
Local: Shot at 1 yr. and found dead at 2 yr.

Banded by F. J. H. Fredeen, Macrorie, Sask. (511-1070):
June 16/40. I. Found dead Nov. 15/40 (direct) Nebraska (405-0982).
June 22/41. I. Shot Oct. 21/41 (direct) in South Dakota (453-1002).
July 18/42. I. Shot Dec. 23/42 (direct) in Oklahoma (351-0993).

Banded by #5498, Woodrow, Sask. (493-1064):
June 20/47. I. Shot Oct. 31/48 (1 yr.) in Oklahoma (348-0988).
Local: Four shot same year, one after 1 yr., two after 2 yrs.

Banded by Bill Anaka, Spirit Lake, Sask. (513-1024):
June 19/60. L. Shot Oct. 9/60 (direct) in Kansas (381-0984).
Local: 1 shot same year; at nearby Canora, one shot same year and three at 3 yrs.

Banded by Dr. J. B. Millar a) Saskatoon (520-1063); b) Melfort (525-1043); c) E. of Swift Current (501-1073); d) NE of Old Wives Lake (501-1054):
a) June 30/62. L. Dead before May 4/64 (–2 yr.) in S.D. (434-0985).
b) June 4/64. L. Shot Oct. 3/64 (direct) in N. Dakota (472-1024).
c) June 8/64. L. Shot Nov. 28/64 (direct) in Texas (295-0957).
a) June 18/64. L. Shot Sept. 17/64 (direct) in N.D. (481-1012).
a) June 18/64. L. Shot Dec. 15/64 (direct) in Oklahoma (351-0982).
a) June 18/64. L. Shot Dec. 12/65 (1 yr.) in Kansas (375-0974).
d) June 24/65. L. Shot Oct. 10/65 (direct) in Texas (324-0962).
Local: Eight shot the same year, two after two years.
Other Sask. (all within 30 miles): two the same year, three at 1 yr.

Banded by Fred G. Bard, southern Sask., released 493 to 533 N and 1014 to 1090 W.:
June 20/35. A. Shot Oct. 14/35 (direct) in Oklahoma (341-0975).
June 9/36. A. Shot Jan./37 (–1 yr.) in Kansas (375-0983).
June 9/36. A. Shot Jan. 3/38 (–2 yr.) in Kansas (374-0982).
May 14/37. A. Shot March 22/38 (–1 yr.) in Iowa (411-0955).

May 14/37. A. Shot Feb. 9/40 (–3 yr.) in Texas (310-0970).
May 14/37. A. Shot Feb. 5/38 (–1 yr.) in Nebraska (410-1004).
May 20/37. A. Shot Jan. 22/38 (–1 yr.) in Oklahoma (364-0971).
May 27/37. A. Shot Jan. 22/38 (–1 yr.) in Nebraska (412-0974).
May 27/37. A. Shot Jan. 2/39 (–2 yr.) in Oklahoma (345-0980).
May 27/37. A. Shot Jan. 19/38 (–1 yr.) in S. Dakota (432-0975).
June 9/37. A. Shot Feb. 24/38 (–1 yr.) in Texas (330-0960).
June 9/37. A. Miscellaneous cause, Dec. 1/38 (1 yr.) in Neb. (410-0985).
June 23/37. A. Found dead April 15/38 (–1 yr.) in N.D. (465-0964).
Aug. 31/37. A. Shot Dec. 2/38 (1 yr.) in Oklahoma (345-0981).
May 11/38. A. Shot July/41 (3 yr.) in Alberta (521-1122).
May 11/38. A. Shot July 8/39 (1 yr.) in Alberta (514-1143).
May 11/38. A. Shot July/41 (3 yr.) in Alberta (513-1140).
May 11/38. A. Shot June 10/44 (6 yr.) in Alberta (521-1140).
May 18/38. A. Shot Aug. 26/39 (1 yr.) in Alberta (521-1122).
May 18/38. A. Shot May 30/41 (3 yr.) in Alberta (532-1105).
May 19/38. A. Shot March 30/44 (–6 yr.) in Kansas (372-0981).
May 19/38. A. Shot March 24/39 (–1 yr.) in Kansas (373-0980).
May 21/38. A. Shot March 6/39 (–1 yr.) in Texas (335-0982).
June 14/38. A. Shot early April/40 (–2 yr.) in S.D. (438-0998).
July 9/38. A. Shot Jan. 23/39 (–1 yr.) in Oklahoma (345-0974).

In same or adjacent quadrant: Same year, 39 shot, 3 trapped, 1 killed by owl, 1 miscellaneous; at one year, 2 shot, 1 trapped; at two years, 2 shot.

Elsewhere in Saskatchewan: Same year, 45 shot, 7 trapped; at one year, 15 shot, 1 caught by hand; at two years, 5 shot; at three years, 2 shot; at four years, 1 shot; at five years, 1 shot; at nearly nine years, 1 shot.

SOME 1968 SOUTHERN ALBERTA BIRD OBSERVATIONS

by **Wayne W. Smith** and **Cleve R. Wershler,** Calgary

The purpose of this article is to put on record some interesting observations made in southern Alberta in 1968. Most of the observations were made in the Calgary area. On a few occasions, one or more of the following people were with us — Stu Alexander, Keith Seely, Red Mason, Ian Halladay, Jack Shier, and Garry McKay. In addition, Dave Thomae and Tom Sadler provided several of their personal observations. The observations show the variety and quality of southern Alberta for bird watching. Even a major city like Calgary has areas of great quality.

Pied-billed Grebe *(Podilymbus podiceps).* On June 13, one adult was found at the first Vermilion Lake, Banff National Park (Dave Thomae, pers. comm.). The next evening (June 14) a nest with seven eggs was found. On July 3, one adult and 6 young (2-3 weeks old) were found on a slough about 10 miles north of Turner Valley (25 miles southwest of Calgary). These two records appear to be the first nestings recorded of this species in the mountains and foothills of Alberta.

Night Heron (sp.?) For three days (August 19-21) an immature heron was seen in Calgary (Inglewood). On one of these days we approached to within 25 feet of the bird, getting an excellent view, as it sat in a large willow. We observed the bird through 7-power binoculars and made field notes from which the following points were taken:

1. conspicuous yellowish bill (short and very thick for a heron).

2. yellowish legs of moderate length.
3. greyish-brown upperparts (darkest on wings) spotted with white, with the spots becoming very small on crown.
4. whitish underparts, heavily streaked with greyish-brown.
5. heavily streaked, whitish neck with brownish wash on upper surface.

The bird was seen to stretch out its neck several times, a habit which we had not observed in night herons before. After comparing our field description with a specimen of an immature Black-crowned Night Heron *(Nycticorax nycticorax)* at the University of Calgary, both of us feel that there is a good possibility that the night heron observed was a Yellow-crowned Night Heron *(Nyctanassa violasea)*. L

Trumpeter Swan *(Olor buccinator)*. On August 24 and 25, a single adult was occupying a large slough about two miles north of Reesor Lake (in the Alberta section of the Cypress Hills.) No other swans were seen.

Gadwall *(Anas strepera)*. A pair was seen on May 31 at Vermilion Lakes, Banff National Park (Dave Thomae, pers. comm.). This species has been seen only infrequently in the mountains of Alberta.

Cinnamon Teal *(Anas cyanoptera)*. Cinnamon Teal are considered to be scarce summer residents in Alberta, with few records from the province *(The Birds of Alberta*, 1966*)*. However, in 1968 there were reports of Cinnamon Teal from six areas in southern and central Alberta.

1. Between April 26 and May 29 the Vermilion Lakes area of Banff National Park was inhabited by as many as five pairs at one time. There was a gap in observations from this area until mid-June, when several pairs were again seen (Dave Thomae, pers. comm.)
2. On May 11, 17 were seen in the Blizzard-Frank Lakes area.
3. On May 12, 8 were seen 2 miles south of Calgary. On August 17, one male was in the same general area.
4. On May 19, a pair was seen at Beaverhill Lake (40 miles east of Edmonton) by the Edmonton Bird Club and Wayne W. Smith.
5. One pair was present in the spring near Strathmore. One female teal with a brood a six was seen on the same slough in the summer; but was not positively identified as a Cinnamon Teal (Tom Sadler).
6. Between mid-July and mid-August 25 Cinnamon Teal were seen on sloughs immediately northeast of Calgary.

The large number of sightings of this species in the Calgary area in 1968 might be attributable to the generally dry spring creating a more suitable habitat, allowing a range expansion into the area from the south.

Ring-necked Duck *(Aythya collaris)* On July 3, three pairs were present on a slough 10 miles north of Turner Valley. During July, one female and her brood of seven were present in the Scott Lake area, ca. 50 miles west of Calgary (Tom Sadler). On July 10, three males were seen on a lake about 45 miles northwest of Calgary. All three sightings were in the foothills section of Alberta and suggest that this species is spreading southwards along the foothills as a breeding species.

Hooded Merganser *(Lophodytes cucullatus)*. On May 22, a male was seen in Calgary (Inglewood). It is unusual to observe this very rare summer resident away from its mountain habitat so late in the spring.

Sharp-shinned Hawk *(Accipiter striatus)*. On September 28, 15 adult birds of this species passed an observation point on the summit of a cliff in the Bighill Springs valley (15 miles northwest of Calgary) in a time period of one-half hour. The birds, following a common flight-line, passed within a few feet of us. Although Sharp-shinned Hawks are fairly common migrants in the Calgary region, such a defined movement is not often recorded.

Ferruginous Hawk *(Buteo regalis)*. On April 7, one dark phase bird was seen just east of Calgary and on September 29 an almost completely melanistic individual was observed near Cochrane. Dark phase Ferruginous Hawks are rare in Alberta.

Prairie Falcon *(Falco mexicanus).* On May 19, one was sailing high in a northerly direction over Beaverhill Lake and *appears* to be the farthest north that *mexicanus* has so far been recorded in Alberta.

Peregrine Falcon *(Falco peregrinus).* On April 17, one flew north, at a great height, over southwest Calgary. On August 17, an immature male came slowly sailing south at about 25 feet over the margin of Frank Lake (30 miles south of Calgary). In Alberta, Peregrines are now extremely rare and are on the brink of extinction as a breeding species.

Knot *(Calidris canutus).* On May 11, three were seen at Frank Lake, and two were recorded just northeast of Calgary in August. *The Birds of Alberta* states that Knots pass over the southern prairies without stopping, and occur as scarce but regular migrants in central Alberta about late May or early June in spring, and the latter part of September in fall. This makes the above two records exceptional in two respects — date and location.

Western Sandpiper *(Ereunetes mauri).* On August 17, one bird, in breeding plumage, was found at Frank Lake, in company with other shorebirds. All important field marks, particularly the distinctive bill, were noted and compared to those of the three other "peeps" in close proximity. The nature of the shore and bird allowed an approach, with a 30x'scope to within 30 feet. This was the third or fourth Alberta sighting of the Western Sandpiper, a species that is listed as "hypothetical" for the province. The observers were Red Mason of Toronto, who is familiar with this species, and Wayne W. Smith.

Franklin's Gull *(Larus pipixcan).* On July 3, several hundred adults were observed in the area of Gorge Creek-Sheep Creek (20 miles west of Turner Valley). This is in the mountains of Alberta, where it has been reported only infrequently.

Sabine's Gull *(Xema sabini).* On May 18 one was seen flying north over the first Miquelon Lake (40 miles southeast of Edmonton). *The Birds of Alberta* gives the status of the Sabine's Gull in this province as a rare, erratic wanderer; but conversations with Edmonton ornithologists revealed this species to be regular, though scarce, in central Alberta.

Hawk Owl *(Surnia ulula).* In December an individual was seen on three occasions just west of Calgary. Like a Gyrfalcon *(Falco rusticolus)* then in the same area, this bird was an habitual bale-sitter. "Stooks" of bales apparently provide favorable perches from which to capture mice and voles.

Barred Owl *(Strix varia).* On September 5 and 6, one was seen in Calgary (Inglewood). This is the second record for the Calgary area; a specimen was taken near the city in 1912.

Red-shafted Flicker *(Colaptes cafer).* One male was seen on St. Patrick's Island, Calgary, in December; making this the third consecutive year that an individual of this species has chosen to winter there. Only rarely do flickers remain the entire winter in Alberta.

Three-toed Woodpeckers *(Picoïdes* spp.). Both species, Black-backed and Northern, were surprisingly common in the Calgary region from October through to December. In the past, these woodpeckers have been irregular, scarce winter visitors.

Western Kingbird *(Tyrannus verticalis).* A nesting pair was found in Calgary (Inglewood) early in August.

White-breasted Nuthatch *(Sitta canadensis).* This species was common in Calgary from September to December, inclusive. White - breasted Nuthatches, known in this area for only a few years, had formerly occurred as scarce winter visitors, of no regularity.

Brown Creeper *(Certhia familiaris).* On July 3, one was in southwest Calgary (Fish Creek). This fills the gap between June and August for this area, making it a "permanent resident".

Solitary Vireo *(Vireo solitarius).* On July 3, a singing male was found in the Calgary Zoo grounds; a great distance south of this species' breeding grounds in the northern half of the province.

Black-and-White Warbler *(Mniotilta varia).* On May 23, a male was seen near the Vermilion Lakes in Banff National Park (Dave Thomae, *pers. comm.*). This would appear to be the first observation from the mountains of Alberta.

[**Black-throated Gray Warbler** *(Dendroica nigrescens).* On September 6, a male warbler, apparently of this species, was seen in Calgary (Inglewood). It had the same general colour pattern as a Townsend's Warbler *(Dendroica townsendi)* except that the yellow of *townsendi* was replaced by white and the olive colouring replaced by grey. The bird's call note was also similar to that of *townsendi.* At the time of the sighting, both of us were familiar with the Townsend's Warbler and Black-and-white Warbler, species with which the Black-throated Gray Warbler can be confused; in fact, both these species were seen the following day. We are, therefore, fairly certain of our identification. The Black-throated Gray Warbler is listed as "hypothetical" for Alberta.]

Bay-breasted Warbler *(Dendroica castanea).* On July 3, a male was found singing in White Spruce habitat in southwest Calgary (Fish Creek). Like the Solitary Vireo, also seen in Calgary on the same day, this species nests in central and northern Alberta. The simultaneous occurrence of two northern forest birds singing in southern Alberta in early July is puzzling.

Ovenbird *(Seiurus aurocapillus).* During the summer there were at least three males on nesting territories in southwest Calgary (Fish Creek). The only other place where Ovenbirds are known to breed in southwestern Alberta is west of Turner Valley.

Yellow-breasted Chat *(Icteria virens).* On August 30, one was found in Calgary (Bowness Park). This seems to be the first record for Calgary proper.

Canada Warbler *(Wilsonia canadensis).* In Calgary (Inglewood) two were seen on August 16, two on August 17, and one on August 20. These are the only known southern Alberta records since the spring of 1966, when several were seen near Banff by members of the Calgary Bird Club.

Rose-breasted Grosbeak *(Pheucticus ludovicianus).* On May 30, a male was seen between the second and third Vermilion Lakes, Banff N.P. It was feeding along the roadside, but flew into a tree when approached (Dave Thomae, *pers. corres.).* Only rarely have Rose-breasted Grosbeaks been recorded in the mountains.

Black-headed Grosbeak *(Pheucticus melanocephalus).* From August 14 to 17 there was a female present in Calgary (Inglewood); on August 20, a female and a male were seen in the Calgary Zoo grounds. This species was also seen in August, 1967, at Inglewood. Just where these fall migrants are coming from is unclear; *The Birds of Alberta* states that in recent years, Black-headed Grosbeaks have not been recorded north of the South Saskatchewan River (more than 100 miles south of Calgary).

Purple Finch *(Carpodacus purpureus).* On August 14, two females or immatures were seen in the Calgary Zoo grounds. Purple Finches are scarce, irregular, migrants in Calgary and when they are seen it is usually late in September; making these individuals six weeks early. In east-central Alberta there were early snowfalls in August which could very likely account for this early southward movement, also observed in the warblers.

Slate-colored Junco *(Junco hyemalis).* Several spent the summer in southwest Calgary (Fish Creek).

Whether or not they nested is not known, but in the light of the following record, it is quite probable. These birds were a fair distance southeast of their normal summer range.

Oregon Junco *(Junco oreganus).* At least one pair nested and raised young in southwest Calgary (Fish Creek); east of the recorded nesting range in the mountains.

White-throated Sparrow *(Zonotrichia albicollis*Q. White-throated Sparrows are regarded as occurring only as migrants in southern Alberta; but in 1968 this species was recorded from three areas in Calgary and two northwest of Calgary. In at least two areas of Calgary young were raised. Also White-throated Sparrows were seen in the second Vermilion Lakes area (three on May 15 and one on May 8—Dave Thomae, *pers. comm.*Q. The only other known observation of this species from the mountains is a pair in June of 1966 at Vermilion Lakes.

Smith's Longspur *(Calcarius pictus).* On September 14, a male in fall plumage was seen about 45 miles northwest of Calgary. This is the only record from this area for several years.

WINTER PIGEON HAWK RECORDS AT BRANDON

by **Mrs. B. A. Robinson,** 1441 - 8th Street, and **Miss Mamie McCowan,** 1415 - 8th Street, Brandon, Manitoba

Because sightings of the Pigeon Hawk *(Falco columbarius)* in winter months are uncommon in Manitoba, the following records made in or near Brandon during the past few years may be of interest.

January 1, 1963: one observed near the southern city limits.

February 6, 1966: a female was seen flying near the Brandon Fair Grounds with a Bohemian Waxwing in its talons (reported *Blue Jay,* 24: 99).

January 15, 21, 28, 29 and February 4, 1967: a female was seen in the same area of the Fair Grounds. House Sparrow feathers were often seen scattered across the snow in this locality.

February 3, 1968: one was seen about eight miles southeast of the city.

In the winter of 1968-69, although we did not see a Pigeon Hawk until late in February, on several occasions during the season we noticed House Sparrow and Bohemian Waxwing feathers on the snow in the Fair Grounds. In February 1969 a gentleman living in that neighborhood mentioned having seen a small hawk. We finally saw a Pigeon Hawk about five miles northwest of the city on February 23, 1969.

PIGEON HAWK INFORMATION WANTED

As part of my continued study of the Pigeon Hawk or merlin, I have recently sent a questionnaire regarding breeding populations in Saskatchewan and Alberta to observers in representative areas.

I was unable to locate observers for the following areas of Alberta: Red Deer River - Little Sandhill Creek, Rosebud, Tofield, and Carsland. If you live in any of these areas and have records spanning a period of 10 years or more, please contact me and I will send you a questionnaire. These are *very important* areas and your assistance will be greatly appreciated.

If any *Blue Jay* readers have nesting data for this species that have not been previously recorded in the Prairie Nest Records Scheme, this too would be greatly appreciated. If any have clutches of eggs of this species collected since 1940 I will have them weighed to see if there has been a significant change in egg shell thickness since the introduction of pesticides.

The merlin has shown a marked decline in many regions and this study is one of several being made to determine the reason for the decline, and if possible, to prevent its becoming an endangered species. YOUR CO-OPERATION IS NECESSARY.

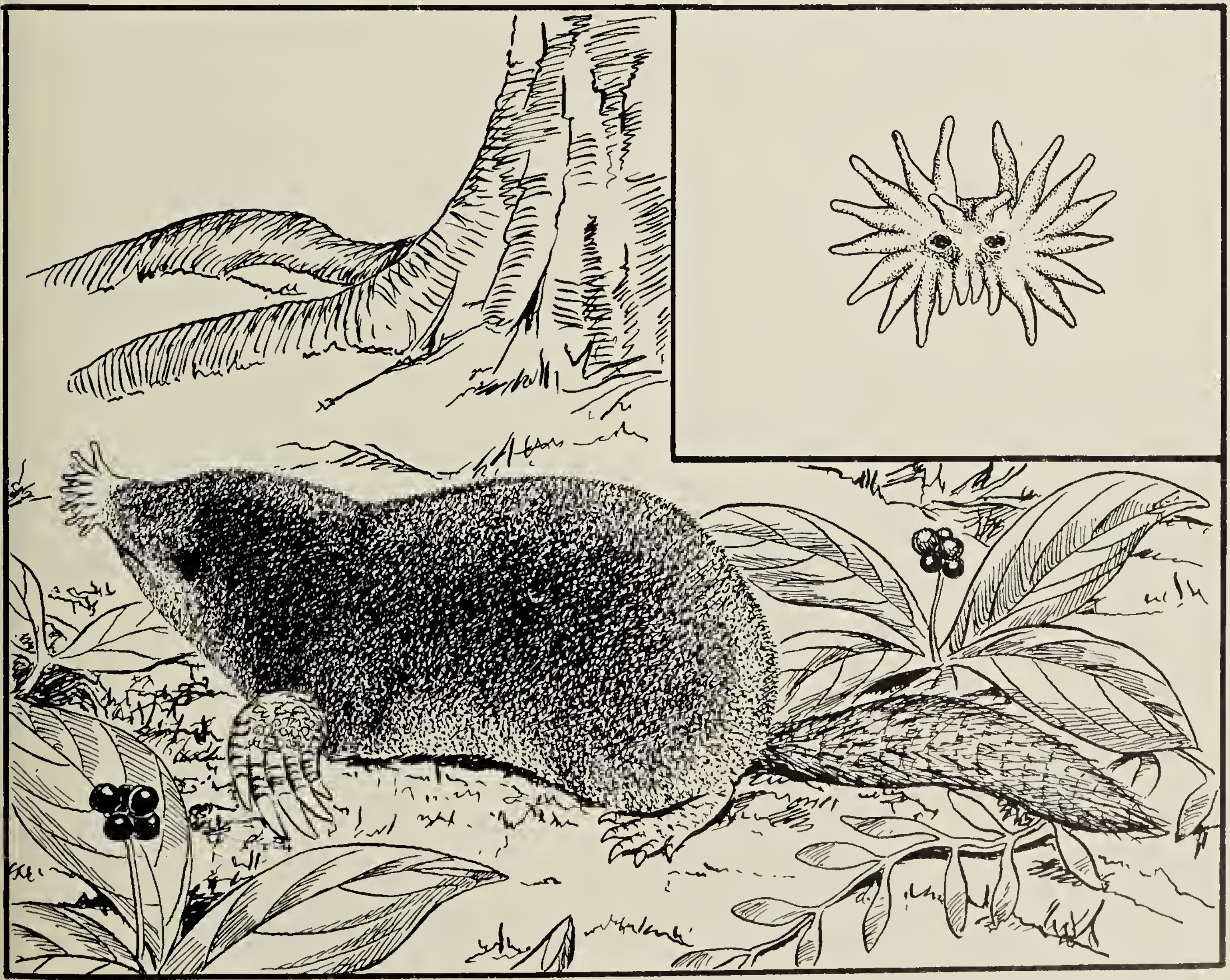
Glen A. Fox, 65 Grange St.,
Guelph, Ontario.

THE STAR-NOSED MOLE IN MANITOBA

by **W. H. Beck,** Manitoba Museum of Man and Nature, Winnipeg, Manitoba
and **A. E. Wilson,** Island Lake, Manitoba

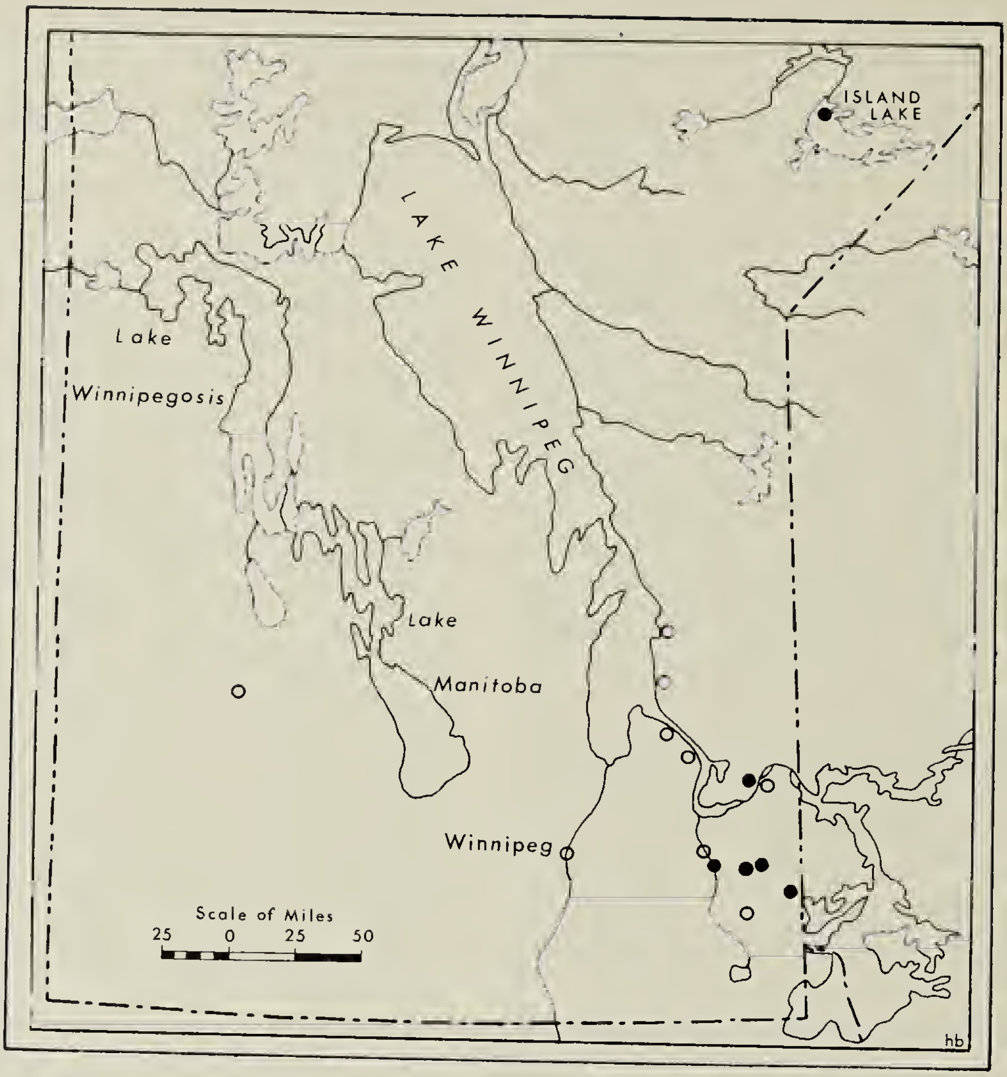
The Star-nosed Mole *(Condylura cristata)*, named for the 22 fleshy, finger-like feelers arranged around the tip of its nose, is an interesting member of the fauna of Manitoba. Its range has been considered as confined to a comparatively small area in the southeastern part of the province—in or near the Whiteshell Provincial Park and north along Lake Winnipeg to Manigotogan. H. U. Green collected three specimens in the southern portion of Riding Mountain National Park in the early 1930's but recent attempts to locate sign of moles in that area have been unsuccessful. The present location of Green's specimens is not known. Frank Baines believed that about 1915 he may have trapped a Star-nosed Mole in the Crescent Lake district, Saskatchewan, and Ernest Dunsmore trapped what may have been a mole near Rocanville, Saskatchewan in the 1930's. Neither of these specimens was retained for positive identification.

In March, 1967 a Star-nosed Mole was found dead on a trail at Island Lake by Faye Bryer and Constance Singleterry who turned it over to the junior author for preservation. The specimen extends the known range of this species in Manitoba some 200 miles to the north. This ties in closely with the northern-most record in Ontario — a recent specimen from Big



The Star-nosed Mole.
Inset shows disc of tentacles.

Drawings by R. W. Sutton,
Manitoba Museum of Man and Nature



Distribution of Star-nosed Mole in Manitoba — ● = specimen records, o = reports.

Reports and specimen records of Star-nosed Mole in Manitoba

Date	Location	Sex	Specimen or report by	Collection
	Black River		Soper (1961)	
January 28, 1949	Decimal	M	snow plow driver	MMMN
February 8, 1963	East Braintree		Sutton (1963)	
September, 1967	Elma	M	R. Blanchard	MMMN
May, 1968	Elma	F	R. Blanchard	MMMN
March 2, 1944	Falcon Lake	M	C. J. Ritchie	MMMN
March 26, 1960	Falcon Lake	F	E. Schindler	MMMN
	George Lake		Sutton (1961)	
	Great Falls		Soper (1961)	
March 19, 1967	Island Lake		F. Bryer & C. Singletree	MMMN
	Manigotogan		Jackson (1934)	
April 20, 1932	Pine Falls		Jackson (1934)	
December, 1958	Pointe du Bois			U. of M.
1930 or 1931	Rennie			MMMN
	Riding Mtn. Nat. Pk.		Green (1932)	
	Whitemouth		Soper (1946)	
	Winnipeg		Seton (1909)	

MMMN — specimen in collection of Man. Museum of Man and Nature; U of M. — specimen in the collection of the Zoology Department, University of Manitoba.

Trout Lake in the collections of the Royal Ontario Museum (pers. corres., R. L. Peterson). The mole has undoubtedly been a part of the fauna of Island Lake for many years because the local Indians have a name for it—"onanapajenikäs"—and look upon it as an omen of bad luck, a sign of the death of someone close.

The Star-nosed Mole is rather rare in Manitoba and there are few authentic records or existing specimens. In western Manitoba it is often confused with the Northern Pocket Gopher which is locally called "mole." Records and reports are summarized opposite and shown on the accompanying map.

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SOME OBSERVATIONS ON CAPTIVE ERMINE

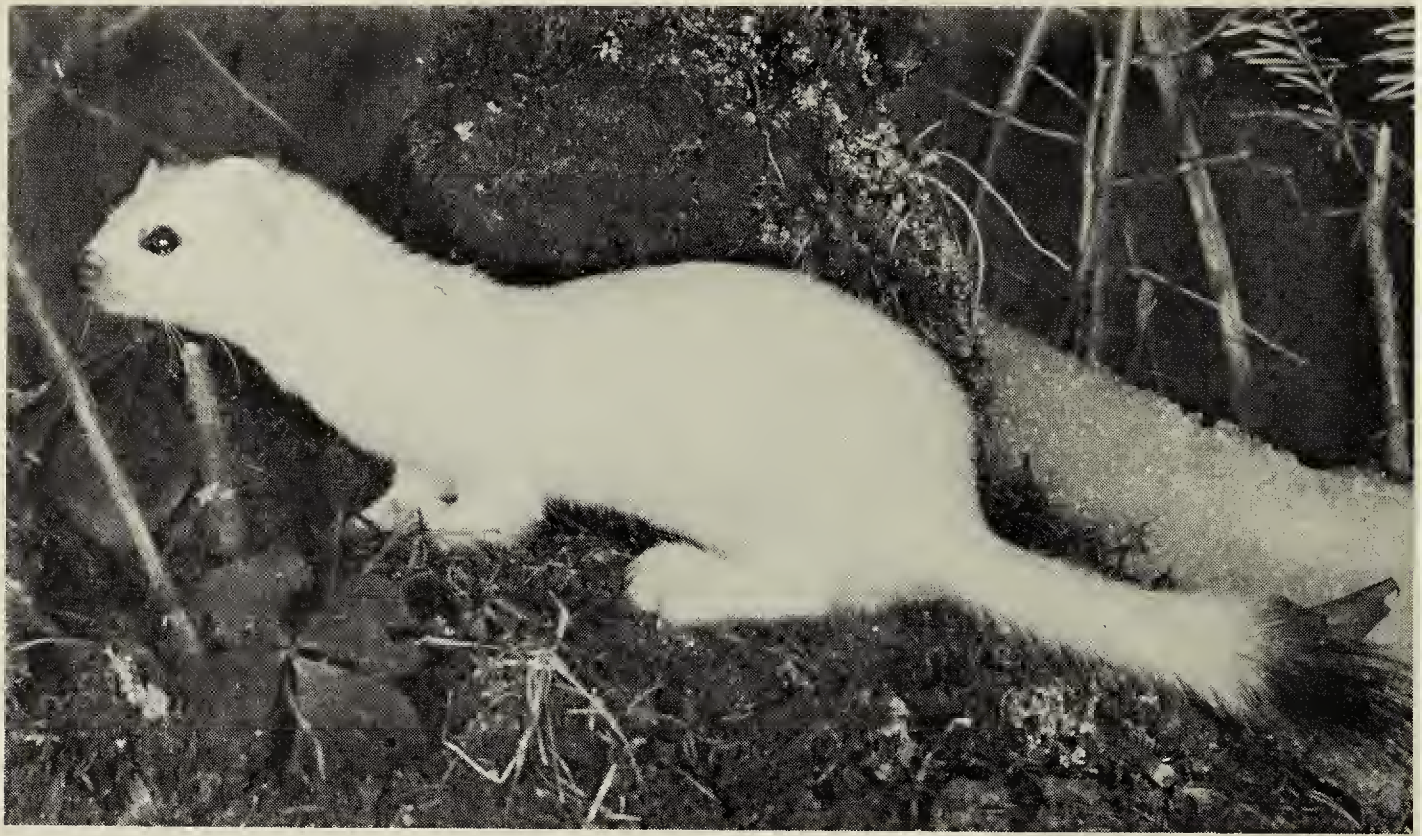
by **Stuart L. Iverson** and **Brian N. Turner,** Whiteshell Nuclear Research Establishment, Pinawa, Manitoba

A by-product of an extensive live-trapping study of the Meadow Vole *(Microtus pennsylvanicus)* at Pinawa has been the occasional capture of an Ermine *(Mustela erminea)*, one of the voles' chief predators. Although many of those captured die of hunger or confinement in the traps (which are designed for mice), some are alive when the traps are checked. Since February 1968, we have been observing this interesting weasel in captivity, with thoughts of learning more about its little-known biology. Since we have only a few Ermine in our cages at any time, we have a good opportunity to observe their habits. The following observations and photographs are based on about two dozen Ermine that have been in our colony for varying lengths of time.

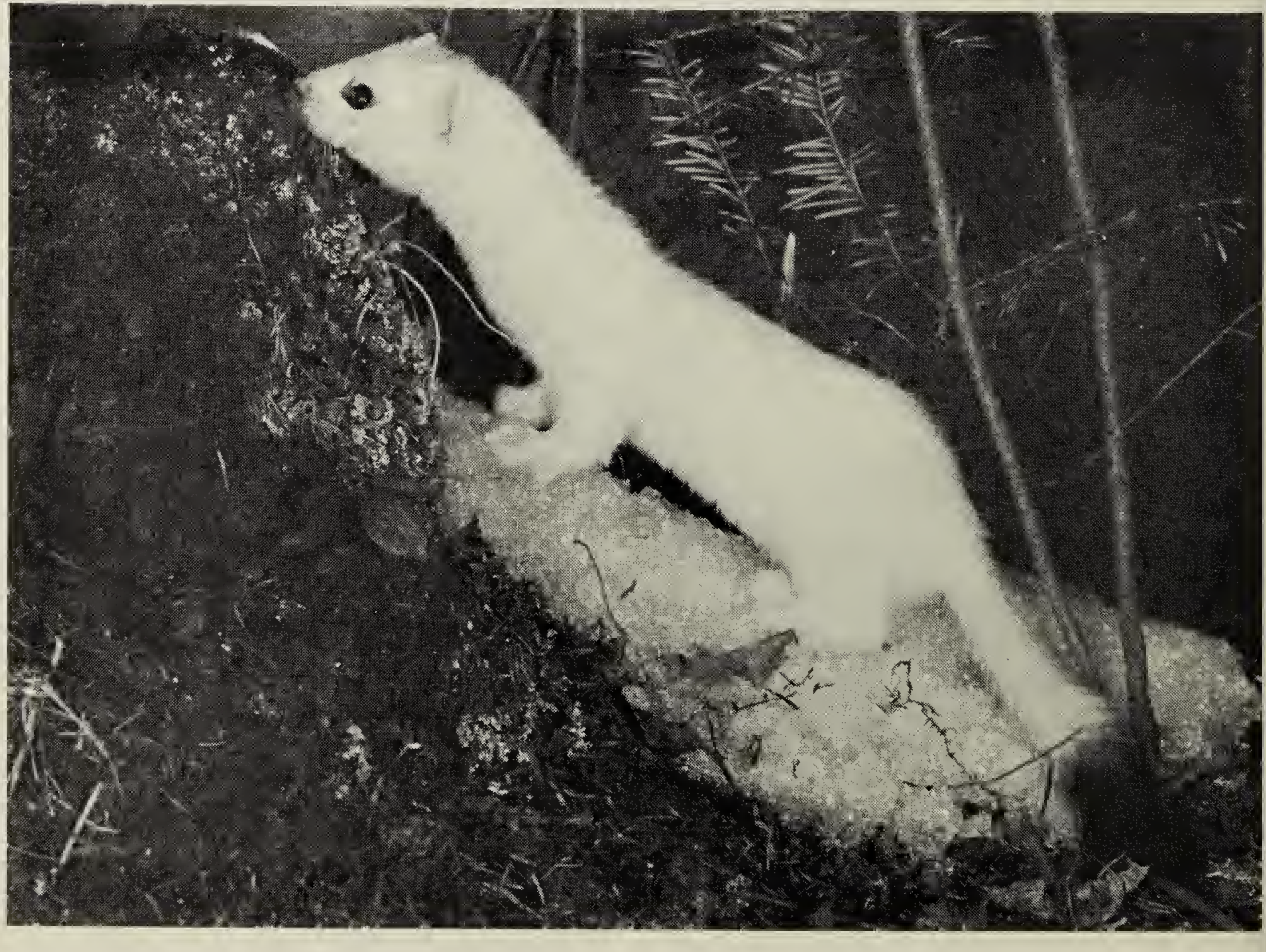
Ermine are remarkably adaptable. After less than two days of living in a glass-walled cage, our first live one, (Stanley, a full-grown male), appeared quite at home and relaxed in his new surroundings. He rapidly took to drinking water from a vertical tube, and made a cosy-looking nest out of packing material. He has now lived in captivity for over a year. This is in direct contrast to the neurotic behaviour patterns developed by many mammals in captivity. For example, tree squirrels often panic when caged and may die of fright, large carnivores can be seen in most zoos pacing back and forth or running in circles, and many rodents, particularly Deer Mice, develop a repetitive somersaulting pattern.

Stanley's curiosity however, was still strong, and any scratching or tapping nearby would bring a head and neck and a pair of bright eyes peering out of his nest. Eventually his curiosity dulled somewhat, and he apparently realized that if there was food coming, it would appear regardless of his reaction to noises near his cage. Quart paint cans lying on their sides with an entrance hole cut in the bottom, and with the lid secured, have now been provided for nest sites. All of our weasels now live in the cans with their heads usually just inside or slightly outside the entrance, allowing them to keep an eye on the world surrounding them.

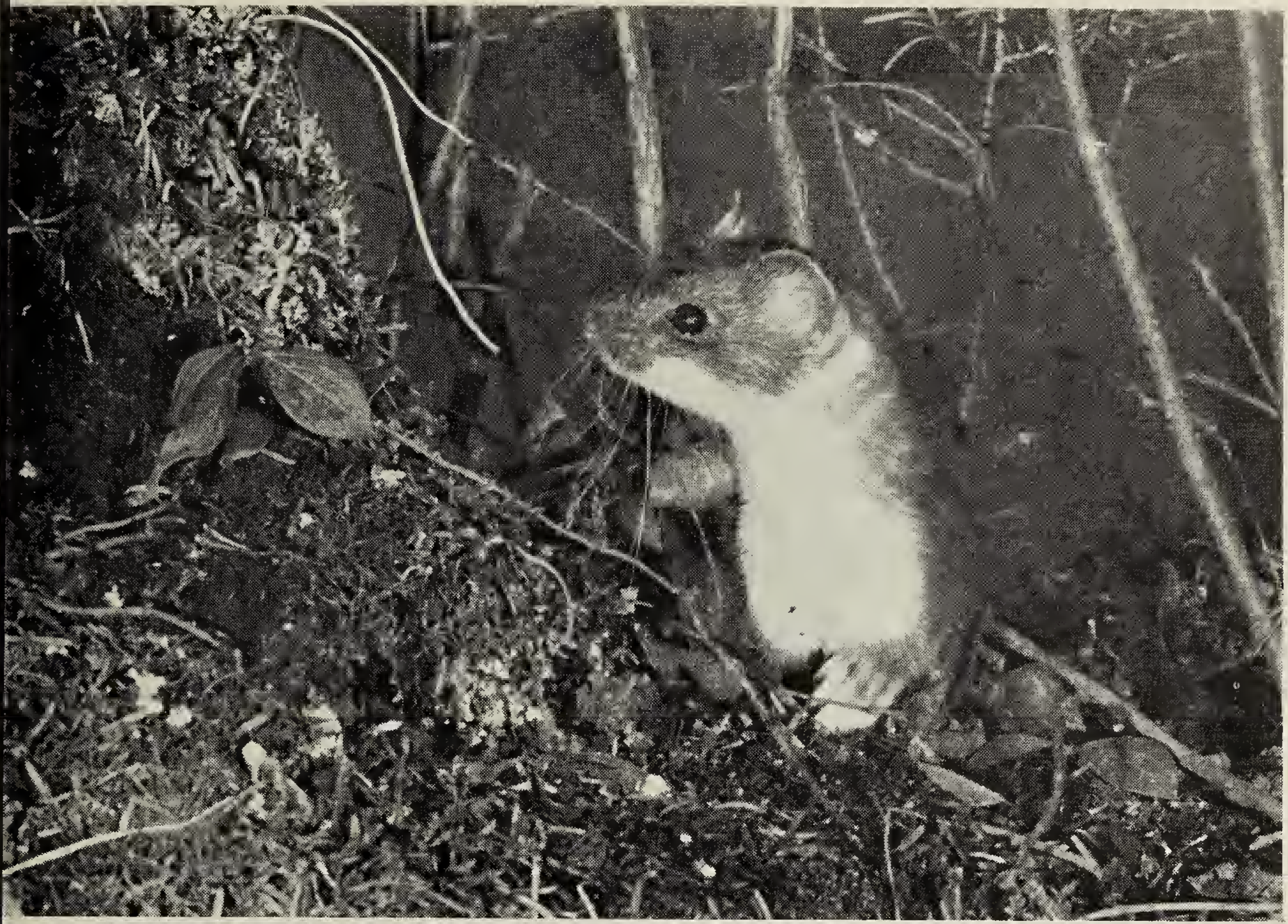
Although people have been able to handle weasels as pets, this relationship requires long hours of patience,



Male Ermine in full winter pelage. Only the tail tip, tip of the nose, the eyes, and a few "whiskers" or vibrissae remain black. The expanded tail tip of the Ermine on the cover indicates a state of excitement (angry or frightened).



Ermine. Note the elongated body and neck of this small carnivore. The relatively large feet are particularly noticeable in the winter when the paws are covered with thick hair, presumably an adaptation for "snowshoeing."

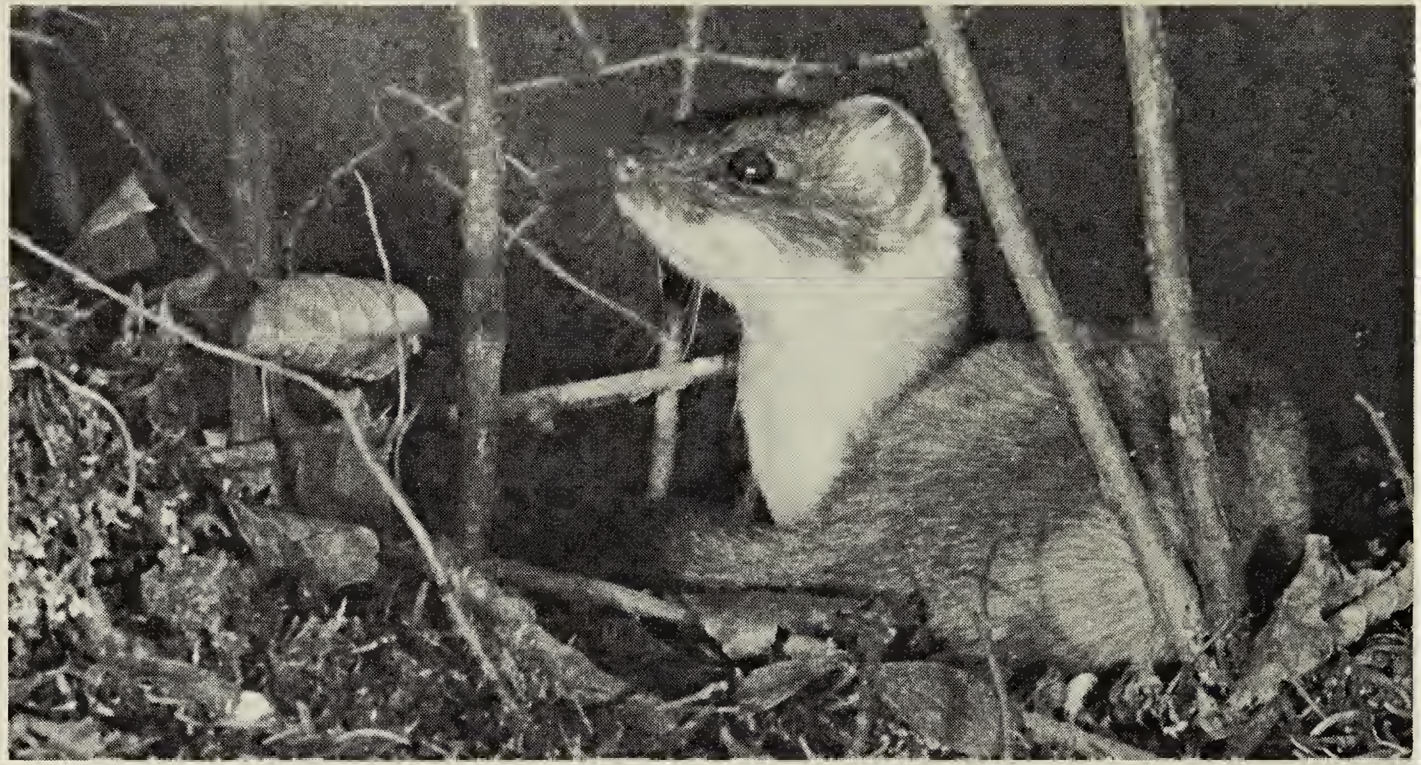


Male Ermine in summer pelage. The tail tip and some vibrissae remain black. The underparts stay white, but the back and sides turn brown. Note the large circular ears.

and with a number of weasels in captivity, the time involved is prohibitive. We thus decided to clean cages by what we thought to be a fairly ingenious system: simply capture the animal in a wire mesh trap, weight it while the cage was being cleaned, and release it back into the cleaned cage. For the first few weekly cage changes, the curiosity aroused by the trap promptly led the weasel to be caught. Later, however, it required more time to coax it into the trap. Stanley long ago refused to leave his cage voluntarily, but instead lay patiently outside the trap entrance, completely frustrating the outwitted trappers. He must now be herded with a piece of cardboard until the only place left to go is into the trap. This old male is probably the tamest of the colony. Although he repeatedly has had the opportunity to bite us, he has only done so once, and then only a token bite which did not break the skin. Stanley apparently would rather try to outsmart his hopeful captor by burrowing through the sawdust under the cardboard, or leaping over the top of it.

Occasionally, one of the weasels becomes disturbed or excited during the capture attempts, and shows its displeasure by erecting the hairs on the tail tuft, and vocalizing. Depending on the degree of irritation, sound varies from a gentle "k-sss" (one of the males, Livingstone, invariably answers this call when given by either of us) to an emphatic chirp. The latter sound is often accompanied by release of the distinctive scent carried in glands in the anal region. Although not really unpleasant, the scent gives a good indication of the Ermine's emotional state, and warns that it should be handled more warily.

Weasels, because of their role in nature, must necessarily be quick and efficient, for a mouse missed by the first strike may be gone in a flash. At first, not knowing what foods



Photos by Iverson and Turner

Ermine. Note how well the animal has adjusted to its surroundings. Though relaxed and lying down it retains its alertness.

might keep weasels alive in captivity, we fed Stanley a natural diet of live mice. The weasel reacted as expected and with a single strike killed his prey. (Females, one-third to one-half the weight of males, usually have more of a struggle before overcoming their prey). However, we found that many sorts of meat would suffice for food, and the colony is now normally maintained on daily portions of frozen meat. But upon introducing a live mouse to Stanley after several months of this diet, we found he had lost the sharpness for killing prey, and lay puzzled in his nest, watching and sniffing at his new cage-mate. Not surprisingly, after several days of live mice, he soon regained his previous efficiency, and after rapidly dispatching the mouse offered, now looks around as if he expects further ones to be handed in.

To photograph Ermine, we devised an 18 by 24 inch platform supporting a piece of natural habitat on which to place the subject. We were apprehensive of the weasel's reaction to this situation, since it was the least confined area the weasel had experienced since its capture, months previously. Would it leap blindly off the edge? Would it immediately try to hide? Would the electronic flash affect it? We could have predicted accurately from our past experiences with them. To explore this new area thoroughly was its first reaction, and unless it could clearly see an attainable target, it would not leap off the platform. The flash seemed not to disturb the animals at all, and one of the older males would continuously pose, delighting us and leading to the results seen here.

Our year of close acquaintance with captive Ermine has given us an opportunity to begin to understand the qualities that make them a successful small predator. Their intelligence, curiosity and adaptability enable them to utilize a food source that must be searched for, approached and captured. Their apparent lack of fear, which causes them to approach novel stimuli rather than to flee as do many small mammals, is also a quality useful to a predator. But bloodthirstiness, a trait commonly ascribed to them, is one that we have not observed. Rather, we have found them to be no more "vicious" than plant eaters, merely doing what is necessary for them to live.

A WOLF KILLS A CARIBOU CALF

by **T. Charles Dauphine,** CWS, 293 Albert St., Ottawa

The wolf *(Canis lupis)* is a major predator of the barren-ground caribou *(Rangifer tarandus)*, but published descriptions of the act of predation are few. On July 10, 1967, I watched a wolf kill a caribou calf near the Thelon River, ten miles west of Aberdeen Lake (64°41'N, 100° 5'W, District of Keewatin, Northwest Territories).

This portion of the Thelon Valley is a sandy, till-covered plain, with winding eskers and low hills (Bird, 1951). The tundra vegetation, composed mainly of lichens, grasses and sedges, forms a thin cover on the well-drained uplands and a denser growth on the poorly drained lowlands.

At 3:00 p.m., while canoeing on the river, I sighted a wolf running parallel to the river 200 yards inland. It topped briefly to watch me, then urned away and ran over a hill. I went ashore, climbed the hill, and with 7 x 35 binoculars, watched the wolf lope up a gradual slope 300 yards away. The animal had white pelage and appeared to be an adult male. Suddenly a caribou calf jumped up 30 yards in front of the wolf and ran in a direction perpendicular to he wolf's course. Reacting instantly, he wolf swerved and bounded to get ahead of and intercept the calf. The calf ran strongly but made no attempt to dodge, even when the wolf drew near. The wolf overtook the calf after a chase of approximately 40 yards and knocked it down, apparently by striking with its shoulder.

The wolf immediately seized the prostrate calf by the back of the head and shook it violently for about five seconds. Then the wolf dropped the calf and continued running up the slope, disappearing over a hill 500 yards away. I observed the wolf for a total of approximately three minutes, and the calf, approximately 10 seconds.

I examined the calf and found that he wolf's teeth had lacerated its scalp and punctured and fractured the parietal, occipital, and frontal bones of its cranium. There was no other evidence of injury or weakness. I estimated from its body measurement that the calf, a 27.5-pound female, was 15 to 20 days of age. It appeared to be separated from its mother, as no adult female caribou was observed in the vicinity during the incident or within one hour afterwards.

Caribou calves, except for the very young, can outrun wolves under most circumstances (Kelsall, 1968). My observation indicated that this calf was vulnerable when attacked at close quarters; the wolf caught and killed the calf with apparent ease. Kelsall (1951) and Banfield (1954) report instances of wolves gaining the advantage of proximity by stalking or ambushing calves in small groups of caribou. Wolves also catch calves from large herds by using the confusion created by the milling caribou to screen their approach (Crisler, 1956) and from small groups by chasing them long distances to expose weak individuals (Murie, 1944, p. 165).

If I had not disturbed the wolf, it probably would not have encountered the calf, or abandoned its kill so abruptly. But I believe that the behaviour of both animals during their mutual stimulation and reaction was not significantly altered by my presence.

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A FOURTH RECORD OF THE MEXICAN SULFUR BUTTERFLY, EUREMA MEXICANA, FROM MANITOBA

by **John H. Masters,** P.O. Box 7511, St. Paul, Minnesota

On July 4, 1968, when I was driving through Riding Mountain, Manitoba with Patrick J. Conway of Aledo, Illinois, Pat spotted what appeared to be an unusual butterfly and jumped out of the car to discover a worn female of The Mexican Sulfur, *Eurema mexicana* (Boisduval). This is only the fourth record of the occurrence of this species in Manitoba. The range of *Eurema mexicana* is normally from Central America and Mexico north to Arizona and Oklahoma; however northward strays are sometimes taken, records being available from Nebraska, North Dakota, Saskatchewan, Ontario, Minnesota and Wisconsin, as well as Manitoba. Naturally the farther north one goes the scarcer records become and there have been only three previous records from Manitoba and only one from Saskatchewan—all of them many years ago.

Brodie (1929) cited two Manitoba examples of *Eurema mexicana,* from Aweme (Norman Criddle presumably the collector) and from Cartwright (presumably collected by E. F. Heath, although not listed from his collection by Wolley Dod, 1916). The third Manitoba record was recorded from Stonewall by Brooks (1942) ! no additional details of this record can be obtained. Rev. Ronald R. Hooper of Fort Qu'Appelle reports only one known record from Saskatchewan, that one having been taken by his brother, Donald Hooper, at Somme.

Eurema mexicana is readily distinguished and cannot be confused with any other North American species. The forewing is basally white and the hindwing basally yellow with orange shading. Black borders are broad and on the forewing outline a "doghead" pattern similar to that in the Dogface Butterfly, *Colias cesonia* (Stoll). The hindwing is squared off producing a short tail.

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SNAKE NOTES

Mr. F. Skertchly, Box 292, Souris, Manitoba, reports that snakes of three species have occurred on the banks of Plum Creek which flows through his land. Judging by his descriptions, these are the Red-bellied Snake, Smooth Green Snake, and probably the Western Plains Garter Snake. As mentioned by Mr. Skertchly, the latter species tends to be more aggressive than other garter snakes. Good descriptions of these reptiles are available in a booklet published by the Saskatchewan Museum of Natural History: *A Guide to the Amphibians and Reptiles of Saskatchewan,* by Francis Cook (1966, 40 pp.) This is carried by the Blue Jay Bookshop Box 1121, Regina.—The Editors.

* * *

"When we lose the richness and variety of scenery and wild plant and animal communities anywhere, are we not that much poorer? Have we not also, along with the loss, taken a step downward towards a monotypic type of living which is not pleasant to think about?" — quoted from **Valley of the Beavers,** a nature trail in the Cypress Hills.

THE METHY PORTAGE — PROPOSAL FOR A SASKATCHEWAN HISTORIC AND NATURE TRAIL

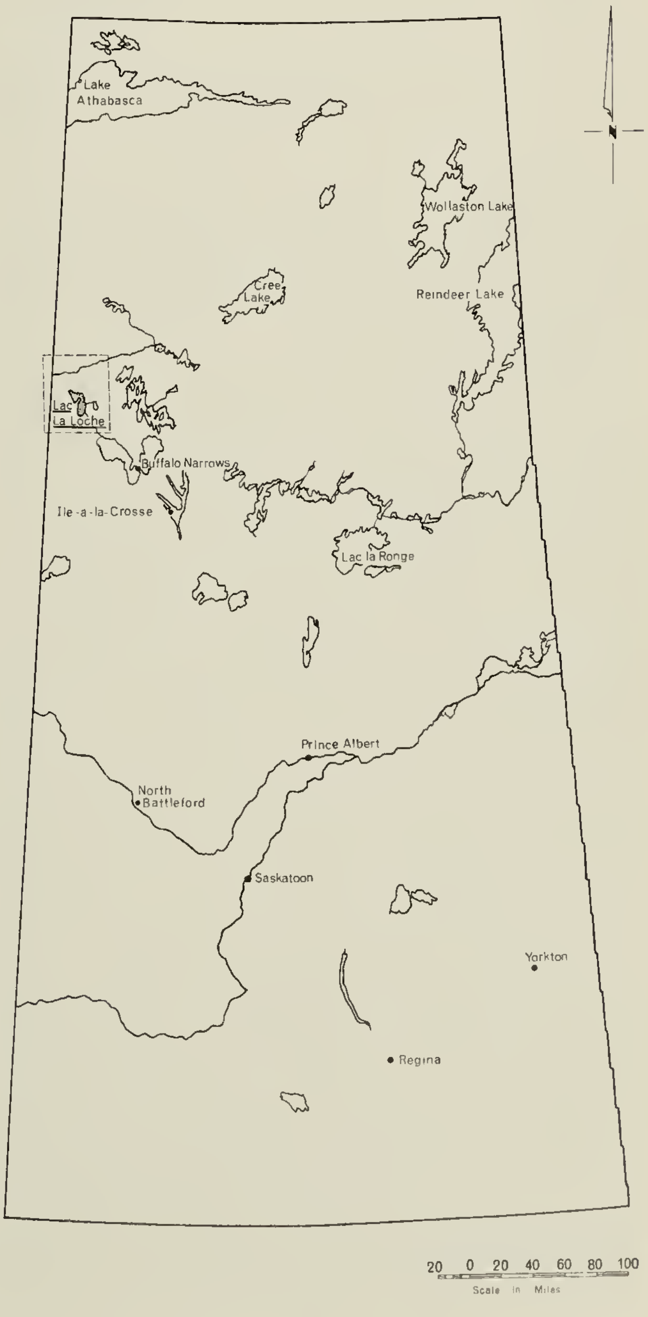
by **Henry T. Epp** and **Tim Jones,** Department of Anthropology and Archaeology, University of Saskatchewan, Saskatoon

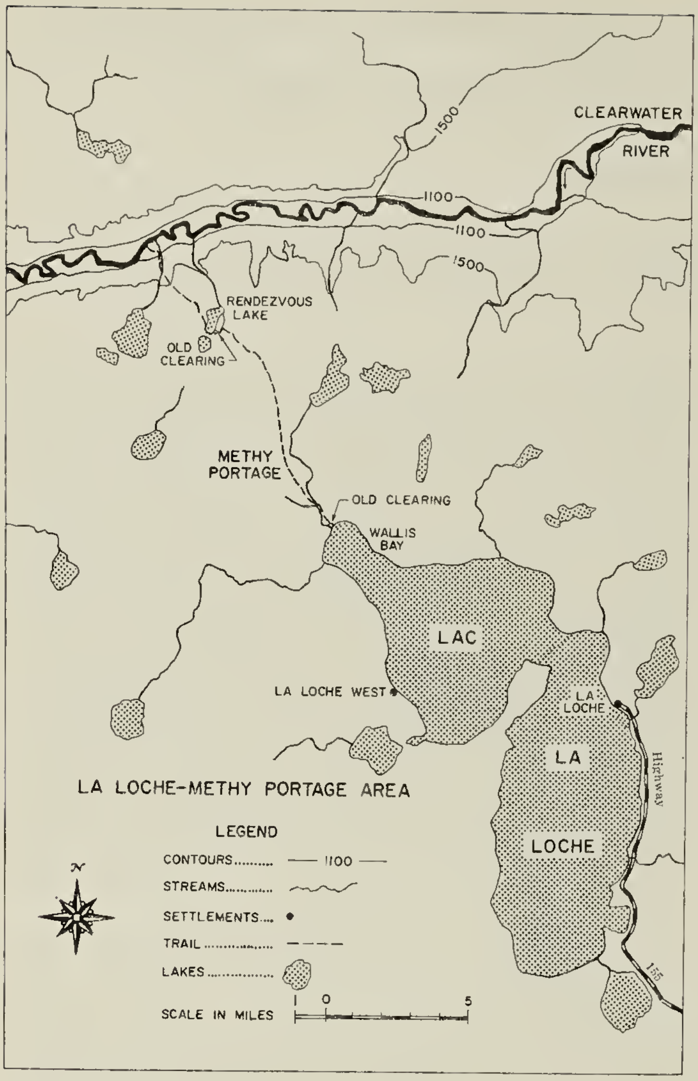
Methy Lake, La Loche Lake, Lac La Loche, Methy Portage, Portage La Loche—all of these are variant names for two geographical features found in the northwest-central portion of Saskatchewan (see maps). These two features are a lake and a long portage both of which bore a great deal of the early traffic in furs and European trade goods that passed through the whole of the American and Canadian northwest from the last decade or so of the 18th century into even the first few years of the present one. Today the portage is more frequently called the Clearwater Portage or the Clearwater River Portage by the residents of the La Loche area.

The History of the Portage

The importance of the Methy Portage during the Fur Trade period of Canada's history was great in comparison to various other portages because it was the shortest possible route crossing the height of land dividing the vast drainage basins of the Churchill River system, which empties its waters ultimately into Hudson Bay, and the Athabasca-Mackenzie drainage system, which flows into the Arctic Ocean. As such, it was the trail along which traders and trappers had to travel to get into or out of the Athabasca district. And it was truly a road in the later days, when ox-drawn Red River carts were used to haul goods north from La Loche and furs back south to this settlement (Ells 1936).

On July 14, 1968, we set out on foot from the northern shore of Lac La Loche to walk the approximately 12½-mile-long portage between the lake and the Clearwater River, with the major purpose in mind of examining the archaeological potentialities of the area, with special attention paid to establishing what sorts of use were made of the portage and what sorts of human occupation of the La Loche area (if any) occurred in periods of the past more distant than the obviously busy early historic period (Turner 1943). The information collected in the few days we were able to spend in the area indicates that artifactual material representing the Fur Trade or "proto-historic" period





is abundant, and that other material goes back at least to Besant Culture times, approximately 2,000 years ago (Wettlaufer 1955).

This shows that the La Loche area was inhabited long before the fur traders and adventurers made use of the lake and portage, and it is highly likely that the portage was used by prehistoric populations as a trail or canoe portage for several thousand years before it became the important commercial route it was during historic times. Prehistory in this part of Saskatchewan, of course, ends in the year 1778, when Peter Pond, supposedly the first white man in the area (or at least the first one known to record his travels here), passed over the portage to explore the fur trading possibilities in the Athabasca region. The fact is that most of the fur traders and "discoverers" followed only the already well-established routes of travel developed over the centuries by aboriginal experimentation and use, and in the company of Indian guides. The aboriginal inhabitants of the continent naturally followed the course of least resistance in their travels, and, considering the length of the Methy Portage and the drop in elevation from the height of land, this portage certainly fits this category. The footing on the trail is level and sure, for the most part — it most certainly is not in many places near or off the trail.

The Area Today

It is premature to discuss the archaeological aspects of the Methy Portage area, and this is not the purpose of this article. Rather, it is to discuss in more general terms what is a too-little-known region of our province. From a natural history and human standpoint, the La Loche area deserves much more attention from the residents of southern Saskatchewan than it has received up to the present day. Now that the village of La Loche is accessible from the south by automobile, it is surprising to find, from conversations with the local people, that there are as yet only sporadic tourist and other visits from the south. The 1,400 or so people of La Loche are mainly Chipewyan Indians and Metis, and their old hunting-trapping type of existence is now rapidly changing. It is being replaced by something of which no one knows the ultimate significance, including the inhabitants themselves, let alone the people of the rest of the province (see Handley 1968).

The Portage Today

By itself the Methy Portage is one of the most spectacular and interesting trails in all of Saskatchewan as far as nature and history are concerned. About two miles from the north end of the portage one gets one's first view of the Clearwater River valley, an enormous glacial meltwater channel. This, not to mention the numerous lakes and varied forest and animal life in the area which are characteristic of the general scenery of northern Saskatche-

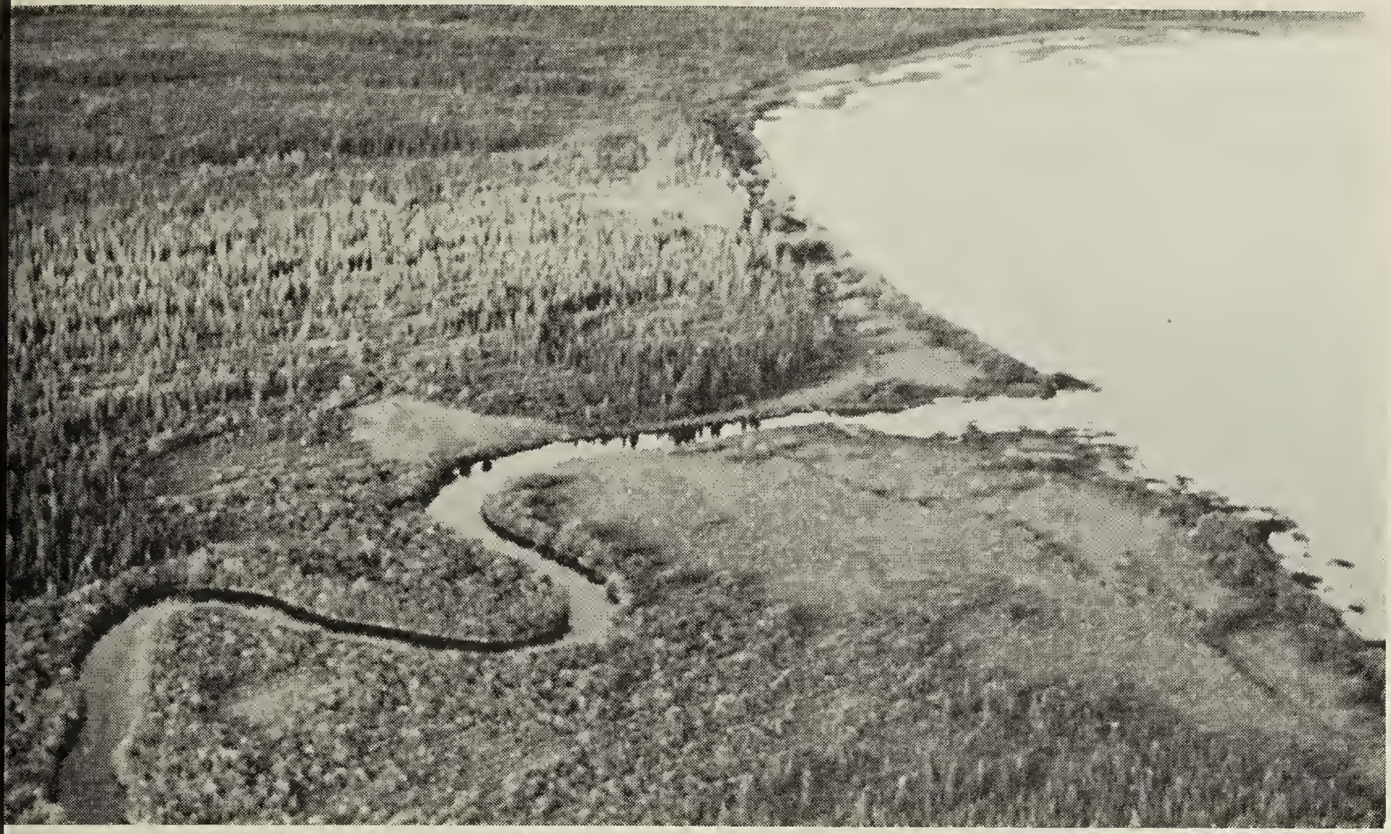


Fig. 1. Aerial view of La Loche Creek, emptying into Wallis Bay. The south end of Methy Portage begins across the creek at the first bend.

wan, is a spot which offers some of the most breathtaking scenery in the province.

The trail begins at a large, grassy clearing approximately two acres in extent, about 70 yards upstream on the northeast side of La Loche Creek, which empties into Wallis Bay, the northwestern part of Lac La Loche (Fig. 1). The trail leads north from there into a swampy area where one sinks almost knee-deep into muck or moss if one wanders off the trail. This part of the trail is nearly overgrown with low, scrubby bushes, along with small, thin spruce and a few tamarack or larch trees scattered rather infrequently throughout the area. After a quarter-mile or so it leaves the swamp and enters an area of sandy ridges covered chiefly with mature, widely-spaced jack pine, and other vegetation generally associated with such a forest. There was some evidence of recent logging or log-cutting. Moose tracks and droppings were visible along much of the swampy section of the trail and the first part of the trail leading through the sand ridges, probably because of the proximity of the lake.

The trail is in fairly regular use by Chipewyan hunters and trappers and their dogs, both in winter and summer, although there is no evidence of recent wheeled traffic. In summer, it forms a route of travel for moose hunters from La Loche and West La Loche to the good hunting grounds along the Clearwater River, and in winter it forms a useful trail for trappers with their dog teams, for in most places it is wide enough to permit the passage of a good-sized sled or toboggan.

The portage crosses La Loche Creek nearly a mile upstream, where one walks over a convenient beaver dam, and then it crosses another small stream coming in from the west, about another mile up. This latter stream appears to be the only available drinking water for about the next six miles, where Rendezvous Lake is reached. From this stream bed on, the ground is extremely sandy for about two miles, and then two low-lying, swampy sections are passed through in fairly quick succession. Strangely enough, the vegetation of these swampy areas seems to be no different from that of the sand ridges southeast of them — fairly thin, but with tall and uniform jack pine representing the dominant vegetation, with a scattering of aspen and paper birch of about the same size growing among them. Perhaps this is due, at least in part, to the fact that the soil of these swampy areas is as sandy as that of the ridges (Fig. 2).

About seven miles up the trail the vegetation type changes to one in which the dominant tree is aspen, and a mile or so farther up it changes to a mature jack pine forest in which the trees are large and rather widely spaced. It is in such a forest that the large opening formed by what is left of the old campground on the southeastern shore of Rendezvous Lake occurs.

The lake itself is small, being less than a mile in diameter. According to Ells (1936), this was where the traders from the north and from the south and east met, exchanged their goods (furs from the north, supply and trade goods from the south), and went their separate ways — hence the name, Rendezvous Lake (Fig. 3). Looking at the map, this may seem like an extremely unfair division of labor as far as the southern crews were concerned, since they had to carry their loads over eight miles instead of four to five miles, which was the case for the northern crews. But the northern four or five miles involve a considerable climb from the Clearwater River and are much more difficult than the southern eight miles.

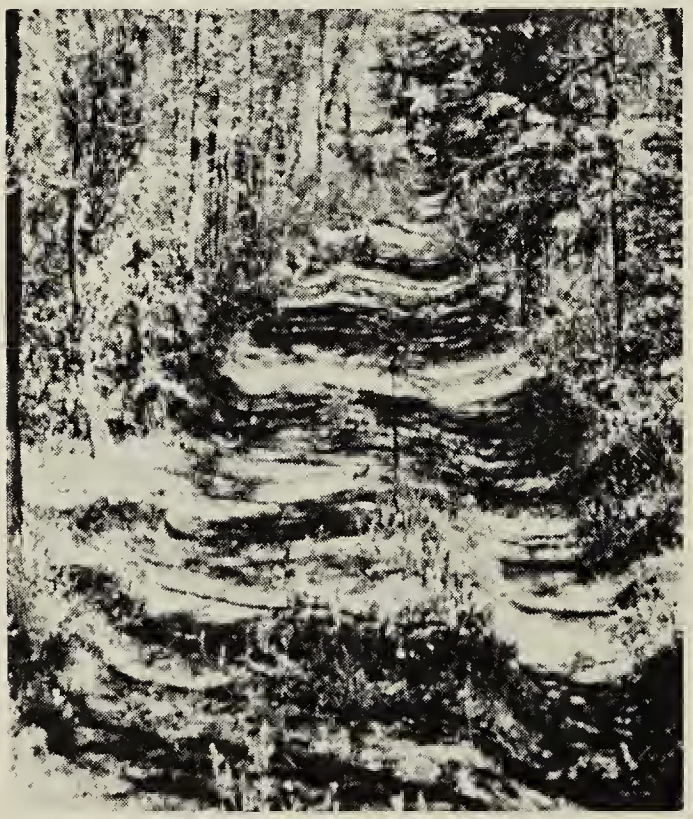
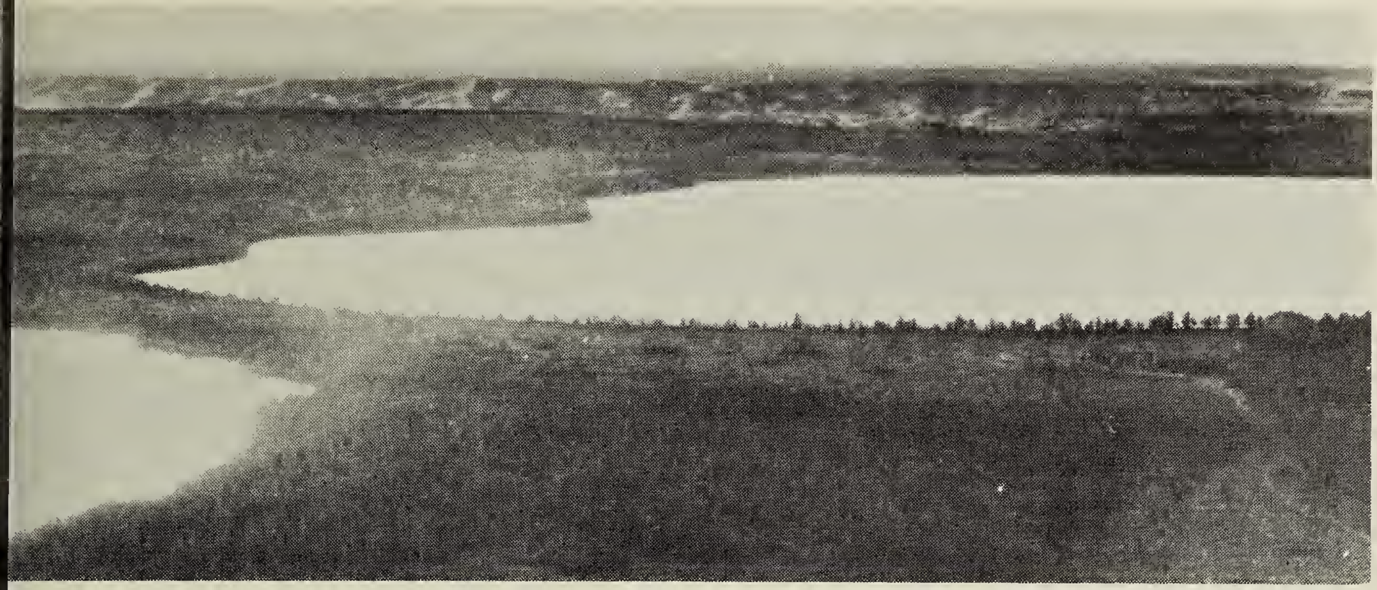


Fig. 2. The double ruts of the ox-carts may still be seen in some sections of the portage, especially in swampy areas.

From the campground on the lake the trail winds its way along old sandy beaches to the western shore of the lake and then strikes off northwestward to the Clearwater River. It rises for about two miles and then reaches the height of land, the elevation of which is about 1690 feet (Ells 1936). The descent from here is gradual at first, leading through vegetation and sandy ridges similar to those southeast of Rendezvous Lake. Suddenly it approaches a nearly vertical escarpment just to the left of the trail. From the top of this escarpment one of the most spectacular views in all of Saskatchewan presents itself. The entire Clearwater valley, more than two miles wide, is visible at this point (Fig. 4). The view in summer is one of an intense green, both from the forests, which cover most of the terrain, and from the grassy meadows visible on the high, hogsback-like, rolling banks on the north side of the river, where, according to Alexander Mackenzie, buffalo and "elk" grazed in large herds when he passed through. Mackenzie, great traveller that he was, considered this to be one of the most beautiful views he had ever seen, a scene of which he said he could not "give an adequate description."

From this point onward the portage winds downward along the steep slopes, and at one point it follows the small, but steep and slippery bed of a stream which runs rapidly down the slope. The forest here is different from that of the sandy ridges south of the escarpment. Everywhere there is evidence of former logging activity, with the trunks of large spruce lying scatteed in all directions. The forest does not now consist of spruce, however, but mainly of second-growth, spindly



'ig. 3. Aerial view of Rendezvous Lake and the Clearwater valley, looking orthwest. Methy Portage winds in toward the lake from the lower right orner of this picture.

spen with some jack pine and paper irch. Where the ground comes to a ear level at the bottom of the valley, which consists of the flood plain of he meandering Clearwater River, the econd-growth forest gives way to all timber consisting of very large balsam poplar and spruce, and this in urn gives way to mainly spruce near he river.

Where the portage approaches the iver another grassy clearing is rossed, which is also an old campground, and is used by Chipewyan moose hunters in the summer to this day. This is the end of the trail, where the portage ended for those who travelled north of Rendezvous Lake, and where it began for those ravelling south.

The river is not wide here — perhaps 200 or 300 feet — and it has cut ts way down at a steep angle into the sandy banks at this point about four o eight feet. The river was once considerably higher, however, even within the lifetime of some of the older residents of La Loche, according to their information on water levels. There is physical evidence for this too, in the form of an old, not yet entirely overgrown, sandy beach about 100 feet back from the present one. This old beach is neither as deep nor as steeply sloping as the new one, but weathering has probably altered its shape considerably. There are few places in Saskatchewan or in northern Canada which can compare with the type of scenic grandeur of the river banks visible from this pleasant campground and the surrounding area. The river is full of fish and the forests are full of game, as was evidenced by the camp of Chipewyan moose hunters we met at the end of the trail, whose families were busy drying meat for use later in the year.

The relative plenitude of fish and game (although this can vary seriously from year to year) is fortunate, because this seems to be almost the only economic resource that the native people can rely on with any degree of certainty. Hunting here is not (nor should it be allowed to become) a luxury for surfeited city dwellers or tourists, but is a necessity for the local people if they are to be self-sufficient. If the game resources are depleted by outsiders, the measure of self-sufficiency that does exist will probably vanish.

With regard to the vegetation of the area, there can be no doubt that it belongs to the Mixedwood section of the Boreal Forest, growing mainly on slightly acid, sandy soils characteristic of the bituminous sand deposits found in the Peter Pond Lake area in general (Kupsch 1954). The section of the trail with the most varied, inter-

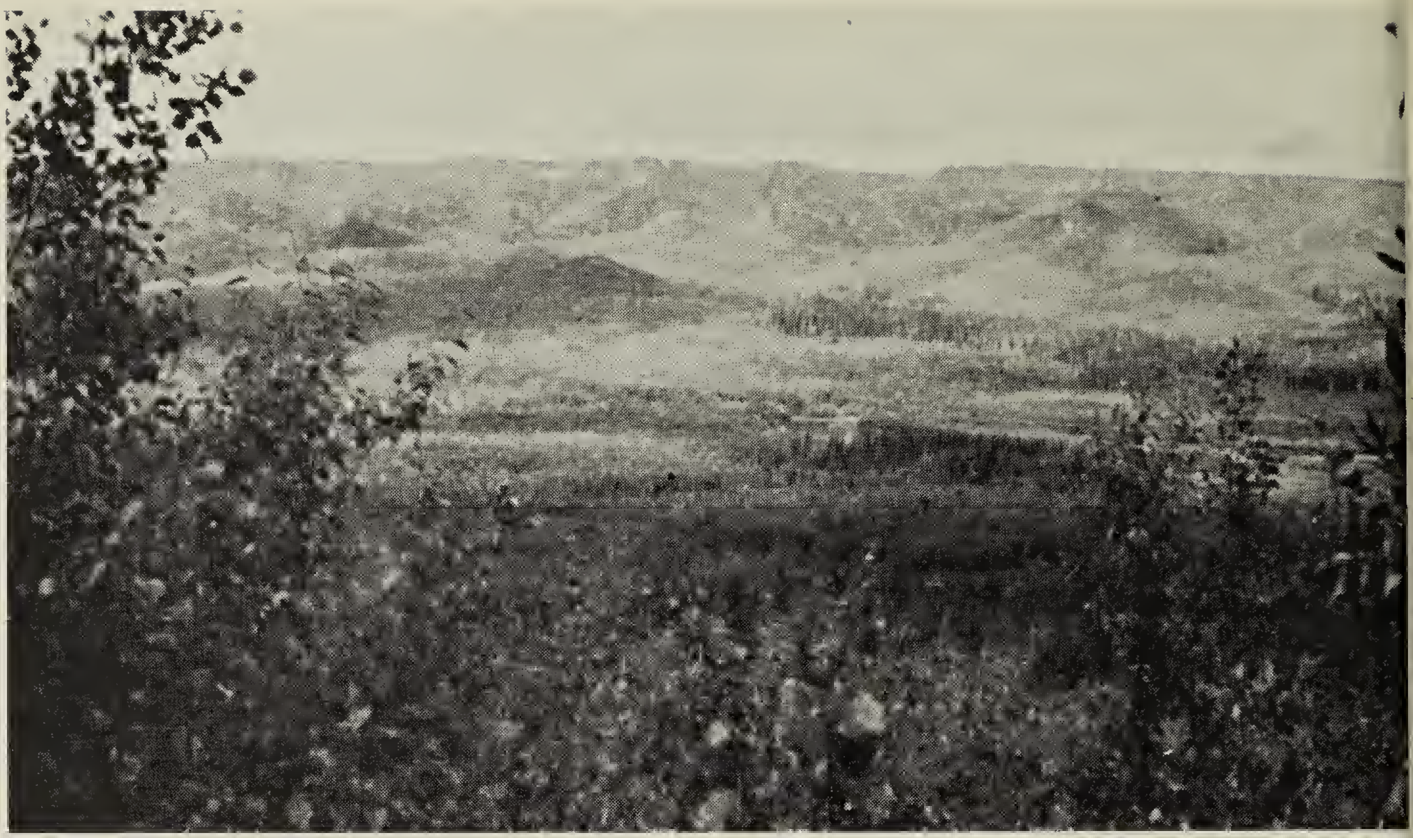


Fig. 4. The Clearwater River and its glacial valley is first seen from the portage about two miles from the north end.

esting, and beautiful vegetation and spectacular scenery is undoubtedly the four or five miles between Rendezvous Lake and the Clearwater River.

Birds were continually in evidence on the lakes and all along the trail. On Lac La Loche itself, water birds were abundant, and among those seen and identified were Canvasback and White - winged Scoter ducks, White Pelicans, Common Loons, Franklin's Gulls, and a large white gull which was not identified as to species. Spruce Grouse were extremely common along the trail, and usually did not fly far when flushed.

The small Rendezvous Lake was always full of birds, including all of the above-named water birds except pelicans. Common Terns were abundant and so were various species of ducks, including the Bufflehead. Ravens and Gray Jays (or Canada Jays) were constantly in evidence near the campground — especially the ravens, for they were their usual noisy selves. On the banks of the Clearwater River, a number of Black Terns, Eastern Kingbirds, and four or five nighthawks (busily catching insects during the middle of a sunny afternoon) were noticed within the space of a few hours. Several ravens again kept up a clamor.

According to the local people, mammalian wildlife of many kinds is also plentiful, and this was made evident by sign all along the trail. Snowshoe hares, moose, bear, and lynx are abundant, as are also wolves. Trapping is reported to be usually good during the winter.

Since the trail itself is of considerable historical value, and since it leads through an area of very typical Saskatchewan Boreal Forest with abundant wildlife all around, and into one of the most beautifully scenic river valleys in the province, we would suggest that at least the northern part of the trail, from Rendezvous Lake to the river, should be left untouched by road builders, lumbering interests, or other commercial enterprises. There is probably no immediate danger of the portage being destroyed because there is still no access by road to it, and the winter road that leads to the Clearwater River has been built so that it goes straight north from La Loche, many miles to the east of the portage.

This trail, if properly preserved, could easily become a considerable attraction for tourists and residents interested in the history, the forests, the wildlife, and the rugged, unspoiled grandeur of the northern half of this province.

Acknowledgements

We wish to thank George LeMaigre for information on local game and other animal resources. Thanks are also due Ed Banman and Ken Robertson for help with the maps, and Gus MacAuley, Conservation Officer, who made it possible for us to take aerial photographs of the area. This research trip was supported by the Institute for Northern Studies and by the Department of Anthropology and Archaeology, University of Saskatchewan, Saskatoon.

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RICHARDSON PONDWEED

by **J. R. Allan**, Lethbridge, Alberta

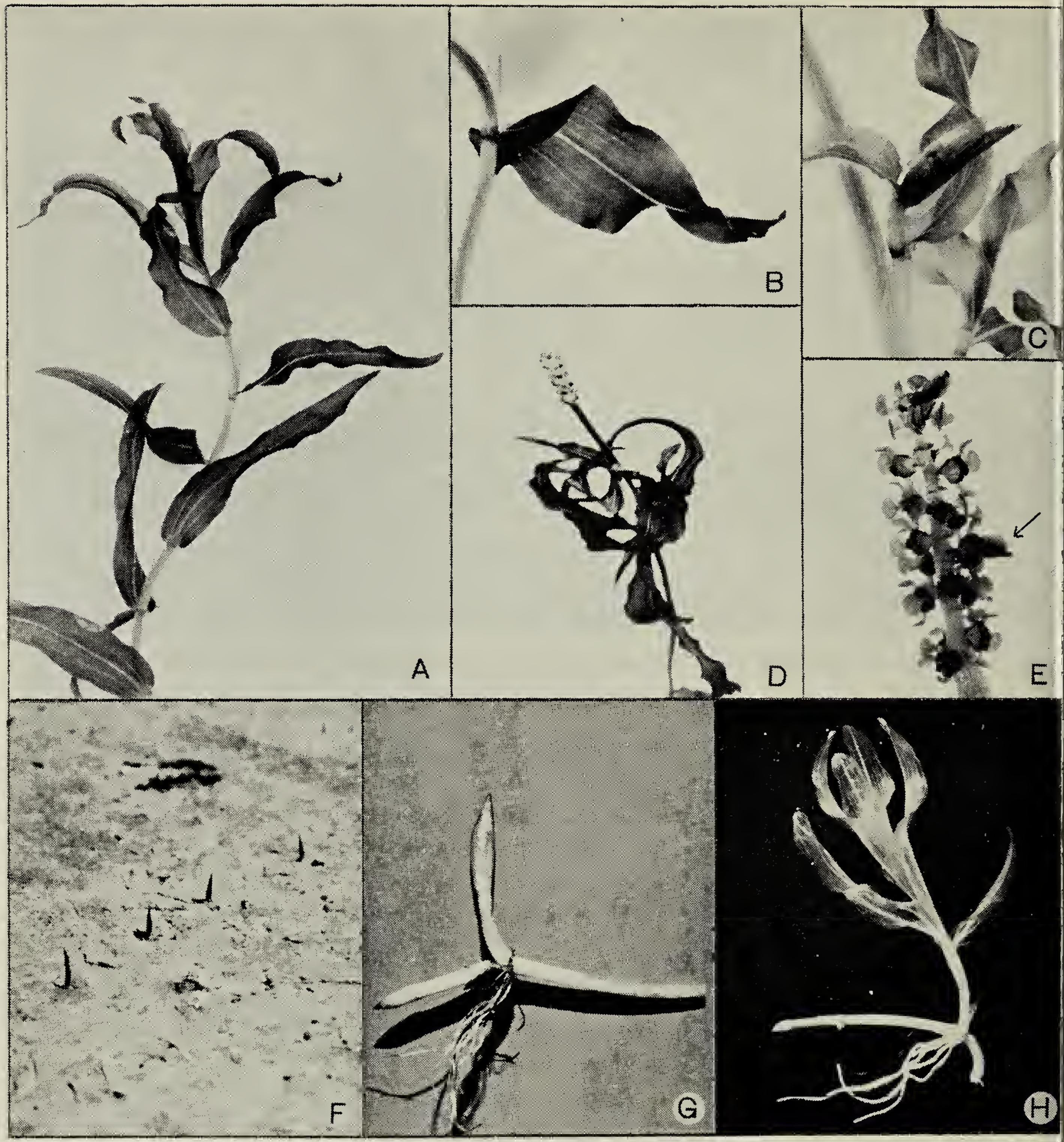
The Richardson pondweed, *Potamogeton richardsonii*, is one of the ten most commonly found, true vascular, bottom-rooted aquatic flowering angiosperms inhabiting the lakes and slow moving streams on the Prairies. The plant, named after its discoverer, Sir John Richardson (1787-1865), was first reported in the American literature in 1905. The pondweeds are members of the genus *Potamogeton* belonging to the family *Zosteraceae* and derive their name from the Greek words *potamos* (a river) and *geiton* (a neighbor) meaning a *river neighbor* because of its place of growth. The genus has about 90 species of which 41 are found in North America, the remainder being distributed over much of the north temperate zone. A very few species are common to the shallow oceanic and brackish waters of North America. The various species of *Potamogeton* are notoriously difficult to identify.

Plants of the family *Zosteraceae* are of little value except in the conservation of wildlife. The Richardson pondweed is very important from the point of view of fish culture. The foliage is considered of little direct importance as a fish food but indirectly it supports extensive insect life, which in turn is of great value as a fish food. The plant offers shade and shelter as well as a spawning medium for young fish. The seeds, parts of the stems and leaves, and the rootstocks are readily eaten by waterfowl.

The Richardson pondweed is a perennial, aquatic herb that grows completely submerged in the water. Its thin, membranous, oval to lanceolate leaves clasp the stem. The leaves become progressively shorter towards the tip of the plant (Fig. 1A). The leaves have wavy margins and exhibit three to seven prominent veins that tend to run parallel to the long axis of the leaf (Fig. 1B). The leaf stipules are coarse and fibrous and may readily be reduced to shreds.

The flowers are perfect. The spikes are sheathed by stipules in the bud (Fig. 1C) and are elevated to the surface of the water on long stalks (Fig. 1D).

The plant is wind-pollinated and is known to form hybrids occasionally with the white-stem pondweed, Illinois pondweed, variable pondweed, and the largeleaf pondweed. Such hybrids are now being made artificially in the greenhouse at Lethbridge. All these species of pondweed are to be found in Western Canada. The seed



is nutlike and has a prominent beak (Fig. 1E at arrow). A single seed of the Richardson pondweed when germinated in the spring is capable of producing approximately 3,600 seeds and 2,400 subterranean winter buds in a single growing season.

Vegetative reproduction is by slender, fleshy, horizontal underground stems (Fig. 1G) that produce reserve shoots in the axils of scale-like leaves (Fig. 1H). At the terminals of these horizontal stems fleshy winter buds are developed for overwintering. In the spring, it is common to see lines of reserve shoots just poking above the mud flats of exposed lake beds (Fig. 1F). As soon as the water returns to the mud flats the plants develop normally and reach the flowering stage by mid-June. The thickened underground rootstocks are rich in starch and have been used by the Indians in times of want as a human food source.

The Richardson pondweed is very common in Wascana Lake, Regina, Saskatchewan, especially around Spruce Island, where it grows in association with other submerged aquatics such as the sago pondweed, coontail, and water milfoil.

Junior Naturalists

Edited by **Joyce Deutscher,** 7200 6th Ave., Regina

NATURE HOBBIES

by **Helene R. White,** Red Deer, Alberta

Summer at last! The birds are ck, the flowers are blooming, moths d butterflies flit about, adding their n special magic to the summer ene.

Should you be spending the entire mmer at home, put out some water r the birds; otherwise wait until u have returned from your holidays. hy? Birds need drinking and bath- g water just as much as humans d as a result choose their new mesite close to an adequate supply. you allow the water supply to dry p, they and their young will suffer, ossibly die. It is better to have fewer rds at a later date, when the igrants come in the fall, than to use a tragedy.

Choose a clear spot for the bath. our bathers must be able to see that e area is free of predators at all mes. Even a low growing shrub or ank of flowers can provide cover for marauding cat. A tree or safe erches must be fairly handy. The ome-made feeder tree mentioned in e September 1968 issue of *Blue Jay* ould do.

If you have a flying saucer, one f those disc-like sleds that you used uring the winter to slide down the illsides, put it to summer use as a ird bath. It makes a dandy. Prop it p with stones or bricks to prevent obbling and accidents. A large flat oulder could be placed in the centre or the timid. Pour a bed of gravel, oarse sand, or pebbles into the bot- om of your bath for safe footing, hen add water to a depth of one inch. f the bottom slopes toward the centre s with the saucer, the central depth hould not exceed two and a half in- hes, birds are afraid of deep water. An old enamel or aluminum roaster makes a good bath too. Keep the bath clean, changing the water regularly.

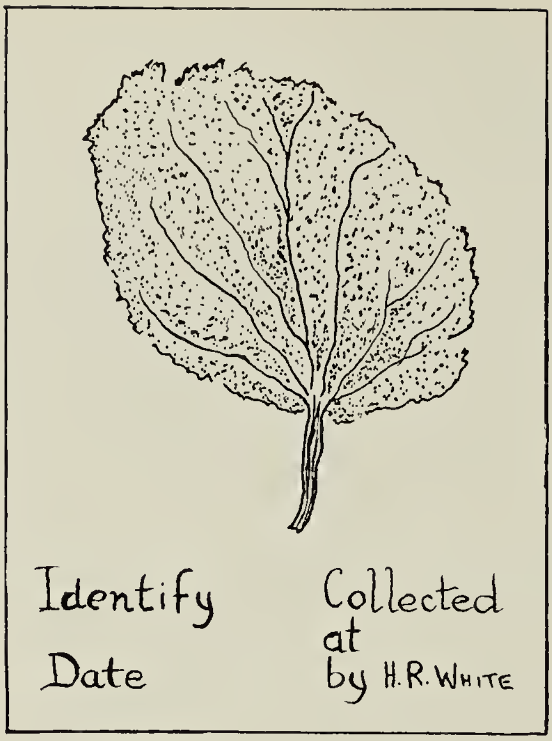
CAUTION: Do not invite birds to the summer garden if you use any insecticides, sprays or poisons whatsoever.

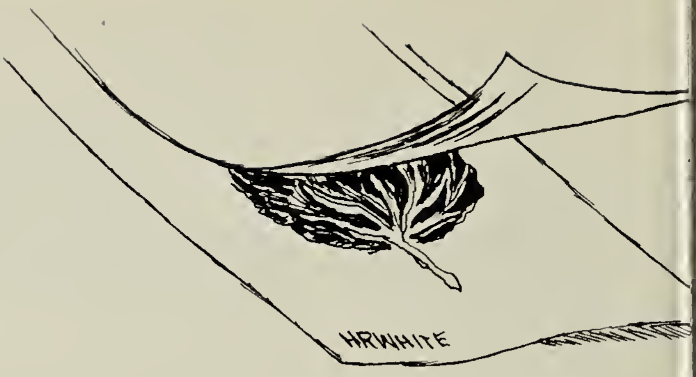
Prepare for fall and winter activities now. Keep your eyes open for butterflies, moths and dragonflies that have died due to natural causes. Please do not kill any. It is not necessary, because insecticides have killed a large number. I found three butterflies on our front lawn and I wasn't even searching. Place your find in an envelope, made as shown, and label it. Store them in a box with a mothball or two. I will tell you how to relax and mount them in September.

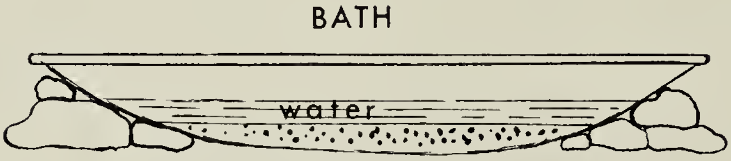
Instead of gathering pressed plants for a herbarium or maybe to supplement it, you could make a scrapbook of plant prints. It is easy, inexpensive, and can be done while camping. You'll need some paper for the prints, a brown paper bag, a candle, a bit of grease and your green leaf. Cut a good size piece of brown paper, grease it lightly, and pass over the candle flame rapidly, this way and that, almost putting the flame out. Do use caution. When your paper is coated with good black soot you are ready. Lay your leaf on it, back down, and rub. Once the leaf back is well coated with this carbon, carefully lay it on your paper, carbon side down, cover with a second sheet and rub again to transfer the print. If you are afraid the carbon print might smear, give it a good squirt with mom's hair spray.

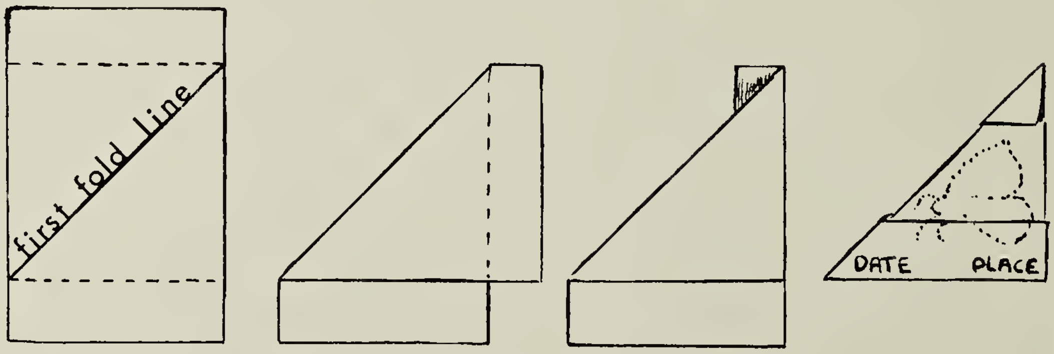
If there is any hobby subject you would like me to deal with, just write to me at 7732 Jasper Avenue, Edmonton, Alberta.

Have a happy summer holiday and I'll see you in September.









Insect Envelope

Illustrations by Helene R.

BIRD BAND RECOVERY AS SCHOOL PROJECT

by **Gerald Laliberte**, Buffalo Narrows

[Editor's Note: Mr. Don McLeod, who teaches at Buffalo Narrows, has sent us a letter from one of the boys participating in his school project of recovering bird bands. Mr. McLeod tells us that there appear to be a number of bird bands in settlements near Buffalo Narrows that have been held for years, and he is having the school children collect these in order to report them to the Canadian Wildlife Service.

We are studying about bird banding and we are interested in finding out what kind of birds the bands came from.

We are collecting bird bands to to the Canadian Wildlife Se They send us reports back tellir which bird the band came from already have 35 bird bands an would like to get 50.

We would like them to send us films about bird bands. The bird are coming from all over the cou The Redhead was banded in land. The Mallard was bande Montana. All the students from classes are bringing bird bands letting Mr. McLeod take the nu off them and he sends them out.

cording to Mr. McLeod, the Red-
anded in Maryland came the
st. In addition, they had a
ing Swan from near Inuuih,
. and a Lesser Scaup from Fort
, Alaska. Mr. McLeod concludes
there appears to be a definite
rd 'drift' of waterbirds going
during fall migration. This will
better defined as more reports
ceived. The rough statistics we
t present show that about 20%
r discoveries have been from
drowned in fish nets."—Ed.]

UCK NEST DISCOVERED

y **Nicholas Shurvin,** Whitewood

t spring we went to Pipestone
looking for frogs. My brother
d on a tiny island and a mother
lew off her nest. In it were two
ngs already out and four crack-
en their shells, and two shells
ked. After a while we left so
other would come back. Next
e went back with our camera.
found was a dead duckling and
gg. We took the egg to the
teacher who found it was in-

caught some frogs and they
all summer in our garden.

MYSTERY BUTTERFLY

by **Debra Hamilton,** Shellbrook

t fall I found a butterfly among
aves of our cabbages. It ap-
l to be dead but when I brought
the house it came alive. I put it
mall jar and left the lid partly
nd put it downstairs among the
bles. Now being the month of
it is still downstairs but I can't
out if it is dead or alive because
ears motionless. I have looked
l places but can not find what
t is.

wingspread is approximately
ches across. It is a dark velvety
, white fringe on edge of wings,
blue, green, oval dots above the
fringe, black tufts of hair on
side of body. It has four legs, two antlers or feelers with fuzzy balls on top of feelers.

If you know the species could you please tell me.

A RARE EXPERIENCE

by **Derwent Mazur,** Yellow Creek

Last year while recording nests for the Prairie Nest Records Scheme I was fortunate enough to find a nest of a Common Goldeneye. This was the first goldeneye nest I had ever found. When I found the nest it was already abandoned for some reason but there were two eggs in the nest. I left the nest in this state for about two weeks. I then told Mr. Isinger about my find and he was interested in seeing it. We visited the nest one day after school.

Since the nest was useless just being left alone we cut the tree down and took the nest with part of the tree.

The nest and eggs are now in the possession of Mr. Isinger.

SUMMER EPISODES

By **Derrick Edmundsen,** Shoal Lake, Manitoba

Last June we were out at our farm in the country. There was a stack of bales in the yard from which flew a young Great Horned Owl. It seemed rather weak as it flew into the poplar bluff. I ran after it, and when it landed on a low branch I grabbed it. Its wing span seemed to hinder it when flying through so many trees. It was quite light in weight. I begged my parents to let me take it home.

We phoned Dr. Houston to ask him to meet us at Yorkton to have it banded; as it was on the weekend we couldn't contact him. We banded it ourselves with an old dog tag which had our Box No. 89, Shoal Lake, on it.

I fed it canned dog food and oatmeal which it gobbled whole. I kept it two days and then let it fly away.

Also during the holidays I made a humane trap to catch rodents. Our

Derrick Edmundsen and owl.

town garden was bothered with pocket gophers. I trapped three and in the evening we would take them far out into the country and let them go.

NOTES FROM LETTERS

Mrs. White would like to hear from boys and girls and get their reaction to the stories she has been writing for them. She would also like to get suggestions for future articles. Her address is Mrs. Helene R. White, 7732 Jasper Avenue, Edmonton 2, Alberta. Mrs. White tells us that she has discovered that Bohemian Waxwings are very fond of Sunny Boy Cereal. She buys it in 20-pound bags for them. She also keeps brandy and water on hand (50-50 solution) and gives a few drops of it to birds who have knocked themselves out against her window. She tells us this prevents clots from forming on the brain surface and keeps them from going into shock.

Garry, from Brownfield, Alberta (sorry Garry, you forgot to give your address) has been counting magpies and chickadees this last winter. He also tells us that he finds the *Blue Jay* very interesting. **Thomas Shurvin** who doesn't tell us where he lives, writes that one night he and his dad saw about 100 deer in one field.

CONTRIBUTIONS WELCOME

Please send letters, photos, and drawings for use in the next Junior Naturalists Section to Mrs. Joyce Deutscher, 7200 6th Avenue, Regina, Saskatchewan, to arrive not later than July 15.

Letters and Notes

ATTRACTING BIRDS

When we came to our present farm there were no trees and no birds. By planting caragana hedges, Manitoba maples, elm, ash and poplars, and later willows and a few spruce trees, by growing a garden of beautiful flowers, by establishing a bird bath, and finally, by hanging up attractive bird nests like gourds, we have encouraged more varieties of birds to come to our farm and to stay and nest here. By this fall we hope to build a large dugout, and to plant willows around it to attract other kinds of birds, especially waterfowl. On our place, we only need to look around us to see antelope, deer, or nesting wild geese.

One of the species that has taken up residence since our arrival is the Baltimore Oriole. About six years ago several orioles arrived but stayed only a day. The next year, orioles returned in spring and stayed three days; the following year they were here for a week, and so on. Two years ago they stayed until the end of June, and last ear (1968) we know they nested. We ave certainly enjoyed having these eautiful birds.

We recognize, of course, that birds re the farmer's friends. A good xample of this is the Horned Lark hat I watched feeding its young in ur yard when the yard was invaded ith grasshoppers. I noticed that she ed her two young and also a young tarling. Although she tried to see hat all three young birds got equal hares of food, the young Starling as so big and greedy, that he always alked ahead of the rest and ate ouble. It was unbelievable the mount of grasshoppers that they deoured. By fall my yard was clear of rasshoppers, and I had learned to espect birds as very valuable friends. —*Mrs. Jean Heine*, Box 725, Maple reek.

WILD TRUMPETER SWANS ON A B.C. REFUGE

On a quiet, sunny morning recently e stood by the Warden's house on he George C. Reifel Waterfowl efuge watching the courtship beaviour of a pair of Trumpeter Swans. They walked toward each other with their wings outstretched and their heads bobbing up and down. The male would take the lead with a loud trumpeting, followed by his mate's and then their blended voices would echo across the marsh. Suddenly their voices took on a frantic note as they lost interest in each other and craned their necks upward to look into the sky. We looked up too and saw the graceful flight of a pair of wild Trumpeter Swans which seemed about to land. Then the wild swans saw us and flared away, only to land a few minutes later in the back marsh with some Whistling Swans and begin feeding.

For three days the wild Trumpeters stayed, spending the daytime in the far corners of the refuge away from people, and at night flying closer to the Warden's house to eat grain with the tame Trumpeters. Then they disappeared and we thought their visit had ended, but two days later they came back to take up residence in a slough only a few hundred feet from the display pens, where they have remained now for almost four weeks (since their arrival February 28).

rumpeter Swans at George C. Reifel Waterfowl Refuge, 1969.

Except for an afternoon sortie out over the tidal flats at low tide, presumably in search for grit which is lacking in their slough, the pair of wild Trumpeters have shown no signs of wanting to leave the refuge. There is even the possibility that they may decide to nest here.

At one time the Trumpeter Swan nested over most of North America, but by the turn of the last century only a few isolated pairs remained in the western U.S.A., with a very limited population in Alberta and on the west coast. However, their numbers have gradually increased, thanks to the protection given them by the Migratory Birds Convention Act (1918), the formation of refuges, the closure of hunting in areas where breeding Trumpeters were known to occur, and a far-reaching publicity campaign. Recent figures indicate a population of perhaps 3,000, with a number in excess of 1,500 wintering in B.C. The main hazard facing these birds is still shooting by irresponsible hunters.

Those who are not familiar with the George C. Reifel Waterfowl Refuge should know that it is located on Westham Island about 20 miles south of Vancouver at the mouth of the Fraser River. It includes about 800 acres of marsh and tidal flats on Roberts Banks, which is the most important waterfowl wintering ground in Canada. The refuge has been in operation for a number of years, and recently grants from the Federal Government and Ducks Unlimited (Canada) have made it possible to open it to the public. Visitors are (therefore) most welcome. — *Keith Hodson,* 5191 Robertson Road, R.R. No. 1, Ladner, B.C.

DOWNY WOODPECKER ATTACKS HAIRY WOODPECKER

On March 30, 1969, near Ladner, B.C., Mr. Glen R. Ryder and I observed an interesting interaction between a male Downy Woodpecker and a female Hairy Woodpecker.

We were observing the Hairy when out of nowhere came a male Downy. He proceeded to harass the Hairy and finally drove her off to a horizontally lying tree some 60 feet away. Seconds later the Downy landed on the same tree, but at the other end, wherein he fanned his tail, held his wings slightly downward, and displayed a brilliant red nuchal patch. He strutted towards the Hairy, then launched a vicious attack, driving her off to a grove of trees some distance away.

The Downy paused for some minutes, giving off short piercing notes, and then flew to a neighbouring willow bush, joining a female Downy.

The Downy Woodpecker's aggressive behaviour was apparently due to an invasion of territory, there being every reason to believe that the two Downies were paired.—*Al Grass,* 5666 Rumble St., Burnaby 1, B.C.

A PRAIRIE IS FOREVER

In 1966 The Missouri Prairie Foundation was established to enable all interested persons to work together to protect the wild prairie lands of that state. The Foundation does not have governmental support, but depends entirely on contributions and membership dues from persons throughout Missouri and elsewhere who are fighting to save precious remnants of Missouri's native prairie.

Although our Saskatchewan prairie does not have the same tall bluestem grasses or the same wild flowers, we are concerned in exactly the same way with the necessity of protecting the

ıtural ecosystem of native prairie una and flora.

For example, the stated objectives the Missouri Prairie Foundation 'e objectives with which we are in mplete sympathy in our own tempts to preserve our Canadian 'airie heritage. These are:

To ensure the preservation of native prairie along with associated plant and animal life.

To advance for public benefit the acquisition, management, protection, control and perpetuation of native prairie.

To carry on educational programs designed to create interest in the preservation and perpetuation of native prairie.

To provide scientific research with respect to native prairie and its flora and fauna.

The sketches that we are printing 'om the little bulletin that describes ıe Missouri Prairie Foundation's 'oject show that prairie dwellers ere and there share many common ›rms of wildlife that will disappear 'rever if a public consciousness is ›t aroused to ensure their protection. ou can help save the Missouri prai- es by sending a donation to The issouri Prairie Foundation, P.O. ox 200, Columbia, Missouri 65201; ›u can help save our own prairies so by donations, but most of all by ·lping others understand why prai- e must be saved. A prairie is forever.

FREEZOUT WILDLIFE MANAGEMENT AREA

One of the best locations for bird watching in Montana is the Fish and Game Department's Freezout Wildlife Management Area located in Teton County, along Highway 89, between Fairfield and Choteau. During four days of June 1968, I recorded 96 species of birds in the vicinity of the lakes, marshes, and uplands of this area.

Bird watching activities begin the last week of March when spring migrants arrive at the lake. One of the greatest attractions occurs the last weekend of March when large congregations of snow geese and whistling swans stop to rest on their northward migrations. An estimated 350,000 snow geese and 11,000 whistling swans have been on the area at one time, plus hundreds of thousands of migrating ducks. Most of the migrations are over by mid-May.

Nesting activity is high from mid-April to the end of May. The young make their appearance the latter part of May or early June.

A show of young birds

The last week of June and first two weeks of July are a good time to observe the broods of young ducks and shorebirds. You can also see young grebes riding on the backs of the adults—a characteristic mode of transportation for the very young of this species.

During October and November, ducks, geese, and swans again congregate here in large numbers on their southward migration.

The area originally was a glacial lake bed which dried up each summer. In 1955, the Soil Conservation Service provided technical assistance to develop a complete conservation plan for the area. A soil survey helped select the best areas for crops to be grown for food for waterfowl and pheasants. Less productive soils were flooded to make additional marshlands. Some uplands were seeded to grass, some planted to trees and shrubs, and others left undisturbed to provide food and cover for wildlife.

A large drainage ditch and dikes were constructed with control structures so water could be maintained at proper depths. Six separate shallow water ponds were created. The dikes serve as roads, and it is possible to drive around much of the marsh area and observe, at close hand, courting waterfowl, nesting ducks and shorebirds, and the broods and young of many water-loving species of small birds.

A varied habitat

The management area now consists of 12,000 acres with many miles of mudflat shorelines; 6,000 acres of water; 800 acres in cropland; 3,000 acres in grassland. Some 20,000 trees and shrubs have been planted. A large island in the largest lake, and numerous man-made islands, provide important nesting sites for thousands of California gulls. The lake supports an abundant growth of submerged vegetation, mostly sago pondweed and widgeongrass, which are important waterfowl foods. Saltmarsh bulrush, formerly called alkali bulrush, grows abundantly in shallow water and is a choice food of snow geese. The seeds are a good food for ducks.—*Louis M. Moos*, Biologist, Soil Conservation service, Bozeman, Montana. Reprinted from *Soil Conservation*, March, 1969.

ANOTHER BUFFALO SKULL

After seeing several buffalo skull pictures and reading some interesting articles about them in the *Blue Jay*, I decided to send this photograph.

On November 2, 1968, I pulled this buffalo skull from a gravel seam in the riverbed of the South Saskatchewan River north of Leader. The river was extremely low, this gravel seam normally being covered with water.

The buffalo skull is in very good condition and appears to be quite aged. It measures 23 inches from tip to tip of the horn cores.—*Daisy D. Meyers*, Leader.

POSTAGE RATES

With this issue the *Blue Jay* wil pay higher postage rates. You wil notice that we have been grante second class mail privileges and tha our registration number is 1046.

The new rate will mean that we pa four cents per pound on bulk mailing to bona fide subscribers in Canada Effective October 1, 1969 this rat will be raised to four and one-hal cents per pound and effective Apri 1, 1970 it will be raised again to fiv cents per pound.

The change in mailing rates is a attempt to make postal services les of a public expense. The change wil probably mean a three-fold increas in our postage expenses. Since w barely balance our books each yea this extra cost is bound to have som effect on our fees and we may lose ou one dollar membership at the nex annual meeting. The only way to pre vent this would be a big increase i membership now. If we could doubl our membership we could more tha save on printing costs what we ar going to lose on postage. This is jus a reminder that we need your help i building up our membership, w especially need your help now if w are going to prevent a general in crease in all membership fees.

VARIATION IN THE PRAIRIE CROCUS

Mr. F. R. Vance of Regina, who has undreds of excellent kodachromes of askatchewan flowers, tells us of find- g a crocus (Pasque-flower) with ure white flowers. There was only ne such plant in the whole popula- on. **Boswell Belcher**, Dilke, found one lant on which the flowers were defi- tely pink in colour. **Carol Beaulieu** Indian Head sent us two flowers, ach with seven petals. She promises watch the plant to see if all its owers show this same character and ne promises to mark the plant for uture observation.

Botany manuals mention both of nese variations in our Pasque-flower. or example, Gleason and Cronquist n *Manual of vascular plants of north- astern United States and adjacent anada* say of the flowers of this lant, "sepals 5-7, blue or purple to hite". Pure white and pure pink lowers must be very rare and I don't now of any study which tells us what ne usual numbers of petals (botan- ts identify them as sepals) is or how his character is inherited. You could tudy variability in the plants in your asture. You could collect some nature seed from special marked lants and grow plants to see if they how the same character. If you grow he Pasque-flower from seed how long vill it be before you have flowers?

BLUEBIRD INFORMATION WANTED

Anyone who has information on the tatus of Eastern and Mountain blue- irds in southwestern Manitoba is nvited to correspond with **Wayne Miller** who is preparing a report on hese two species. Breeding records nd sightings anywhere in Manitoba vould be useful. Information is needed n population changes, reproductive uccess, and interactions between the wo species. Wayne can be reached at: **Almond Crescent, Brandon, Mani- oba.**

DECEMBER RECORD OF MOURNING DOVE AT OXBOW

My reason for writing this is to report the Mourning Doves that stayed with us until December last year. On November 26, 1968 we saw two Mourning Doves near our house, and both birds were seen again on December 9, when they seemed lively and strong. This was the last day that we saw the two doves, but a single bird was seen on December 19, 22 and 23 — when it was –15° here. It was seen again on December 24 at the cattle shed, and for the last time on December 26, when it was carrying some small object in its beak while a magpie gave chase. — *Mrs. Keith Paton*, Oxbow.

[EDITOR'S NOTE: It will be noted that a Mourning Dove was reported for the Christmas Count at Piapot last December (December 26, 1968). Mrs. Houston also tells us that her Christmas Bird Count files show records of single Mourning Doves seen on December 26, 1953 at Saltcoats, on December 26, 1962 at Fort Qu'Appelle, and on December 15, 1965 at Nipawin.]

PRAIRIE NEST RECORDS SCHEME

Contributors are reminded to send 1969 nest record cards in. Write for information and nest record cards to Dr. R. W. Nero, Manitoba Museum of Man and Nature, 147 James Avenue, Winnipeg 2.

SNHS SUMMER MEET

June 13-15

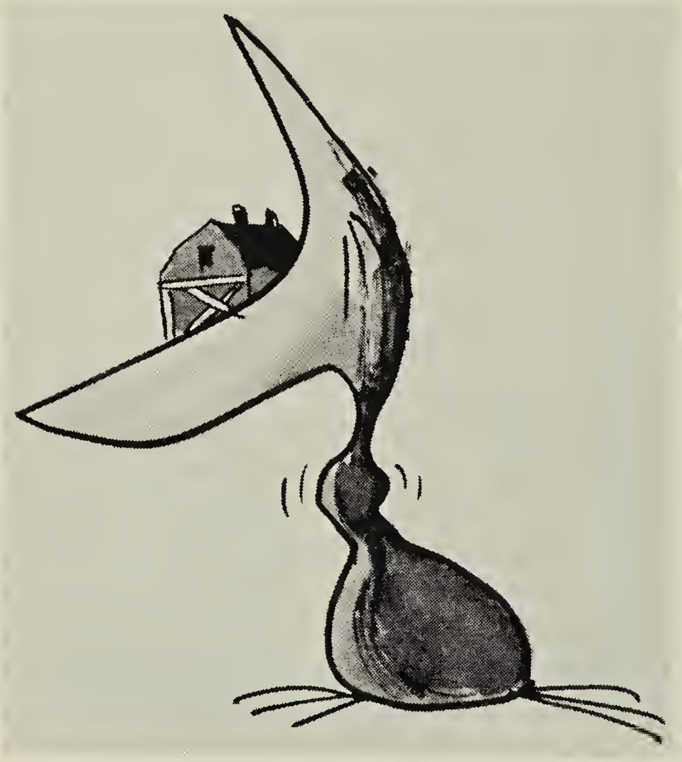
Val Marie, Saskatchewan

This is a reminder that the annual field meet will be held this year at the Society's Prairie Dog Sanctuary, with the Chandlers as our hosts. Registration begins Friday evening at the High School Auditorium in Val Marie. Official opening of the sanctuary will be at 5:00 p.m. Saturday.

The Blue Jay Bookshelf

BIRGER'S BIRDS. By Birger Roos. 1968. Golden Press, New York. $1.50.

A tiny hard cover book containing 20 pictures in colour and each identified by common and scientic name. For example,



Barn Swallow
Hirundo rustica

AN ENVIRONMENT FIT FOR PEOPLE. By Raymond F. Dasmann. 1968. Public Affairs Pamphlet No. 421. Public Affairs Pamphlets, 381 Park Ave. S., New York. 25 cents.

People looking for inexpensive materials on conservation to distribute among students or members of other interested groups may be interested in this little 28-page booklet. It is of course written principally for Americans, but since our problems are so similar, Mr. Dasmann's comments are also relevant for us in Canada. He writes from the viewpoint of a new definition of conservation as "rational use of the environment to achieve the highest quality of living for mankind."

Much of the discussion is concerned with the hazards facing cities, but Dr. Dasmann, who is Director of Environmental Studies for The Conservation Foundation and has worked with universities, foundations and UNESCO on conservation problems, also recognizes the interdependent needs of urban and rural area. Soil erosion exploitation of rangelands and forests destruction of the marine environment, and threats to our wildlife and natural resources are all related to his broad concern.

There are rates for larger quantities, and no shipping charges on prepaid orders, thus encouraging the wider circulation of this booklet Another title in the same Public Affairs series that might be of interest is Edward Edelson's **The battle for clean air.**—*Margaret Belcher,* Regina.

A PLACE FOR EVERYTHING. 1968 By David Munroe. CBC publication 122 pp., 387 photographs, nine full-page plates. Available from CBC Winnipeg. Price $3.50.

"A place for everything and everything in its place," is an old saying and if some people forget this and live in a state of chaos and muddle, the opposite is true in nature's scheme for full utilization of her resources, and the proper distribution of her many and varied forms of plant and anima life.

This is well explained in the foreword of this fascinating book abou Canada, which is at once a simple explanation of ecology, a travelogue from a new and exciting point of view, a gallery of fine, self-explanatory photographs, and a well-sustained plea for better understanding of Canadian wildlife in relation to human exploitation. The Arctic regions, the mountains, the eastern woodlands, the northern forests, the great plains, and the sea-girt coastal islands are al dealt with understandingly, and with great appreciation. This colorful book should go far towards bringing abou a better sense of the wholeness of ou far-flung country for those who, un able or unwilling to travel, may have tended towards a merely regional viewpoint; as well as for those who, even when they do travel, may tend to retain that regional point of view and thus make biased comparisons.

Certainly, maple groves in the glory of fall are breathtakingly beautiful; but so are great prairies at sunset, the mountains with their glittering peaks and cool, shadowed rivers, while the "blue fragrance" of which a poetess wrote can be found in the lonely land of ice-floes lit by the midnight sun. Yet all these scenes of beauty would seem lifeless, and perhaps sad, were it not for the flash of a blue jay's wing, the passing of wildfowl overhead, the whistle of a mountain marmot, or the calling of ptarmigan, not to mention the sight of even grander beasts. It may not be appreciated by many Canadians that nowhere outside of Africa are there to be seen herds of hoofed animals in numbers comparable to our barren-ground caribou in their migrating hordes. All this, and much more, will be found within the pages of this volume.

Everything is in its place — but for how long?

Exploitation by man threatens many environments, and therefore many species of plants, and animals and fish; and this is brought to the reader's attention in simple and easily understood terms, to the end that each and every Canadian may pause to consider his or her personal responsibility.

The CBC is to be doubly congratulated on having produced this work; first for its clearly uttered message, and secondly for its artistic presentation of wildlife and scenery. This book should bring a new sense of identity to young readers, as well as a sense of delight to older and more sophisticated people.—*R. D. Symons*, Silton.

MANITOBA WILDFLOWERS, 1968. Manitoba Department of Mines & Natural Resources, Conservation Extension Branch, Winnipeg, Manitoba. 25 pp., illus. in color. Free.

Although this is only a 25-page booklet, it compares very well for colour photography and layout with publications like the *National Geographic.*

The Introduction admits that this booklet is not an identification guide but a little colour introduction to the many flowers to be found in Manitoba. In addition to the beautiful photos, however, there are many small items of interest about these flowers. I was particularly interested by the little item on the Paintbrush, which we attempted to transplant last year. It promptly dried up and died. So we thought when we read the item which stated: "To flower it has to join its roots to the roots of other plants and absorb food from them," that the plant was parasitic. However, the *Audubon Nature Encyclopedia* states that it is *sometimes* parasitic, although it has a root system of its own. The 1969 issue of "Prairie Garden" has an extensive article on wildflowers. Therein it states that Paintbrush can *definitely* be transplanted, and that it will come up next spring even though it dried up immediately after being moved.—*Anthony J. Hruska,* Gerald, Saskatchewan.

WATER. 1968. Inland Waters Branch, Dept. of Energy, Mines and Resources, Govt. of Canada, Ottawa. 60 pp., illust. Available free of charge.

The formula H_2O gives a simple chemical definition of a colorless, transparent, tasteless, scentless compound of oxygen and hydrogen in liquid state, convertible by heat into steam and by cold into ice. It is also the only substance that gets lighter in weight as it turns into solid form.

However, water is not that simple or pure any more. Water such as "heavy water" and "tritiated water" have appeared. Finally, we have the hazard of "polluted water."

This booklet contains important information on water and water use. Concise explanations are given of the hydrologic cycle of desalination, conservation, and water resources.

Because of the intrinsic importance of Canadian water a short review of the International Hydrologic Decade (IHD) is in order. On January 1, 1965 the Educational, Scientific and Cultural Organization of the UN instituted a ten-year program of study and research into the fundamental principles affecting water distribution and movement throughout the world. Canada has been taking a very active part in this program. Canada is in a unique position because of its hydrologic environments which vary from Arctic, temperate, humid, to desert.

Canada has a major portion of the world's total supply of fresh water. Therefore, any program of research into the supply and movement of water would be incomplete without Canada's participation. In recognition of the scope of the proposed Canadian program, Canada was appointed to a two-year term (1965-6) as a member of the Co-ordinating Council, this term being extended later for a second two-year term.

As naturalists we are interested in conservation of our heritage. Conservation is a simple concept but very difficult to apply. Who can assign a dollar value to the flowers that grow on the side of a hill, or the birds that inhabit our marshes? True conservation must rest on a very fine balance. On the one hand there must be a balance between many different uses; on the other hand, between aesthetic values and material needs.—*Anthony J. Hruska*, Gerald.

WHOOPING CRANES. 1969. U.S. Dept. of the Interior, Fish and Wildlife Service, Resource Publication #75. U.S. Govt. Printing Office, Washington, D.C. 20402. Price 10 cents.

The *Blue Jay* has tried to keep its readers informed of publications on Whooping Cranes, since these rare birds migrate throughout the Great Plains area which the journal serves. For that reason, we want to mention a little French-fold type of bulletin that has just been published by the U.S. Fish and Wildlife Service to give the latest information on the current status of the species. For 1968 the total of adult and young birds in the wild is given at 50, with 19 additional birds in captivity.

A summary statement of the physical character, life history, and status of the species is made, and there are accompanying black-and-white photographs and an outline map that relates the breeding and wintering grounds in Wood Buffalo National Park and the Aransas National Wildlife Refuge.

The two-year experiment (1967 1968) of removing eggs from nests in the wild for hatching at the Patuxent Research Centre in Maryland is described, and it is urged that the taking of eggs does not reduce the normal number of young of the year raised to maturity in the wild. The eggs hatched in captivity are therefore expected to increase the tota crane population.

Credit is given in the bulletin to the National Audubon Society for sponsoring research and protection for the Whooping Crane.—*The Editors.*

HINTERLAND WHO'S WHO. 1968 By the Canadian Wildlife Service Queen's Printer, Ottawa.

Under the popular title of "Hinterland Who's Who" there has just appeared a series of folder-type pamphlets published by the Canadia Wildlife Service on the Canadia fauna. We have had sent to us th following pamphlets—Bats, The Canada goose, White-tailed deer, Th whooping crane, Red fox, The blac bear, Herring gull, The caribou, an we assume that anyone interested ca get these by writing to the Queen' Printer, Ottawa.

Each folder contains a quick sketc of the animal, with a note on rang and habitat, a brief reading list, an the inevitable final paragraphs o how the Canadian Wildlife Service fit "into the national wildlife picture."—*The Editors.*

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